

The Elements

Transforming Teaching
through Curriculum-Based
Professional Learning

A Challenge Paper From



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Teachers deserve the highest quality professional learning to support the implementation of new instructional materials and curriculum. The Elements of Curriculum-Based Professional Learning provide essential guidance for transforming teaching and student learning.

– Jim Short, Program Director, Leadership and Teaching to Advance Learning, Carnegie Corporation of New York

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The Challenge: Transforming Teaching through Curriculum-Based Professional Learning

School board members, parents, education stakeholders, and all educators have a vested interest in the success of *all* students. And one thing they have witnessed firsthand is clearly supported by research: curriculum has a direct impact on student engagement and learning. The instructional materials that teachers use with their students can dramatically accelerate or hamper learning.

Perhaps less obvious, yet even more important, is that the way in which teachers use curriculum matters too. This presents a unique opportunity to enhance the efforts of hard-working teachers: provide them with strong, high-quality, standards-aligned curriculum and make sure they know how to take advantage of everything it has to offer. The question is, how?

While the research is clear on the characteristics of effective professional learning in general, it is limited in its attention to professional learning designed to support the implementation of high-quality instructional materials. This paper identifies and describes the elements of effective curriculum-based professional learning, including how these elements are being used to positively affect schools across the country. And it challenges school and system leaders, curriculum developers, and all specialists in professional learning to apply them.

Teachers need the highest quality professional learning to understand, practice, and transform teaching and student learning. The Elements of Curriculum-Based Professional Learning provide essential guidance for seizing these opportunities.

The Elements: Transforming Teaching through Curriculum-Based Professional Learning is a **Challenge Paper** from Carnegie Corporation of New York that explores how professional learning anchored in high-quality curriculum materials can allow teachers to experience instruction as their students will, change instructional practices, and lead to better student outcomes.

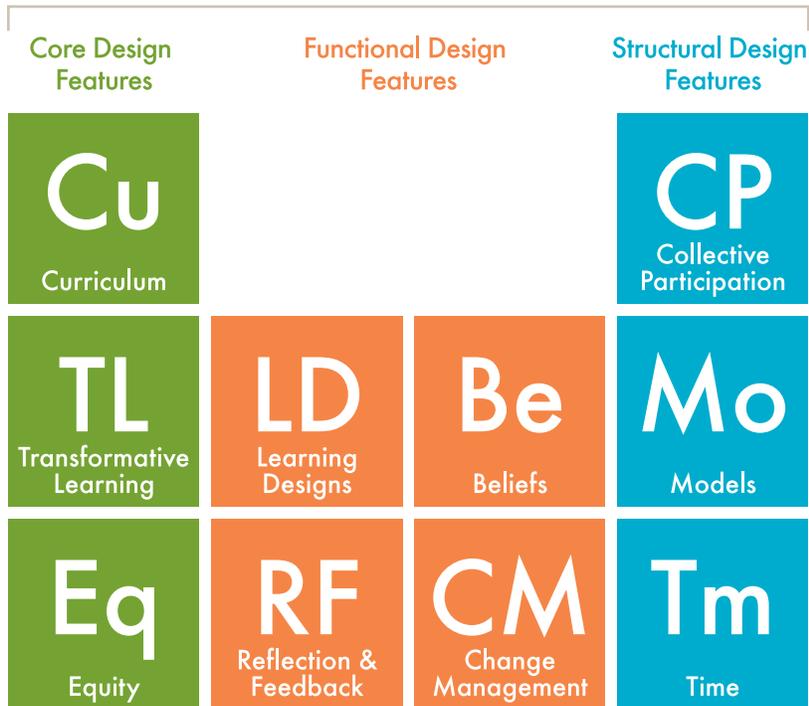
The goal of a Challenge Paper is to lift up ideas and issues in a way that will influence fields and the nation's agenda. The subjects we deal with, along with the questions that we explore and the issues that we frame, grow out of our grantmaking work. For more information, please visit our website: www.carnegie.org.

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The Elements

of Curriculum-Based Professional Learning



The Essentials



The Elements are the expectations and according actions that school and district leaders, curriculum developers, and teacher development organizations take to promote and design curriculum-based professional learning. They include:

- **core design features**, which focus on the purpose of curriculum-based professional learning
- **functional design features**, which shape teachers' experiences
- **structural design features**, which describe parameters and settings

Elements may be used in different combinations depending on what individuals and organizations need at different times. But all curriculum-based learning rests on **the Essentials** – the expectations for system and school leaders that nurture growth and change.

A TRANSFORMATIVE APPROACH TO TEACHER LEARNING

Victoria Paredes’s 10th-grade geometry classroom is a busy, noisy place. Teenagers cluster in small groups, chattering in English and Spanish as they swap hypotheses and use clues to find the diameter of a circle. Right or wrong, they share their answers to probe and master the day’s learning objective.

All this activity is part of a new problem-based curriculum at Desert View High School in Tucson, Arizona, where Paredes has taught for seven years. Illustrative Mathematics emphasizes mathematical thinking and student discourse to promote active learning. The lessons look nothing like the traditional lectures of years past. Instead, they prompt the sort of complex, rigorous inquiry that educators had envisioned when setting new college- and career-ready standards for student achievement.

This type of inquiry-based instructional approach can be energizing for teachers and students alike. Paredes beamed as she recalled the day her students figured out the inscribed angle theorem before it was formally introduced — an astonishing achievement at a school where just one in five students had passed a statewide math test the year before. On end-of-year surveys, her students wrote that the class “felt awesome” and that they “had a major say” in their learning. One student wrote, “We didn’t have the answers given to us, and we actually had to learn.” Another said, “The way you teach — the way you do not help solve problems — has helped me. I like math.”

But lessons like Paredes’s are not easy to adopt. Teaching this type of curriculum, where students’ questions build on each other in unexpected ways, requires a different approach to planning and a reframing of the teacher’s role. As she worked to implement this new approach, Paredes met regularly with a skilled mentor and a small group of teachers from Sunnyside Unified School District to dissect and rehearse upcoming lessons. “We would go over a whole lesson from top to bottom and really dive deep,” she said, discussing what moments were most important, what questions were most likely to arise, and how to push students’ thinking so that they would master a rigorous learning goal.

“I never stopped being surprised, pleasantly surprised, by my students,” she said. “But the one difficult thing about implementing this is you have to be really intentional every single day in the classroom.... It’s not just instruction, instruction, instruction.... You have to anticipate — if a kid says this, how am I going to respond, or how am I going to ask another kid to say this? So it’s a lot less me talking, but it’s a lot more in facilitation. It’s a strange transition.”





Teachers' jobs are changing in real time. Over the past decade, new academic standards have dramatically shifted our expectations for student learning. It's no longer enough to raise a hand and give the right answer. Instead, we want students to wrestle with complex problems, collaborate with one another, and investigate and apply information in creative ways.

In today's classroom, teachers facilitate while students do most of the talking. Learning is relevant and joyful, rooted in exploration and debate. Classes are unpredictable and challenging — especially for the adult circulating throughout the room or monitoring the message board, keeping the discussion on pace to achieve the goal for the day's lesson. School closures due to the COVID-19 pandemic have only added to the challenge, as students and teachers have been required to adopt new modes of communication and sophisticated technological tools for remote learning.

This is not how most teachers learned when they were in school. It is not how most teacher preparation programs develop adults to lead a classroom. And it looks nothing like the seminars that dominate teachers' professional development experiences. Most often, the emphasis is on creative lesson planning and keeping students engaged — a razzle-dazzle update to traditional stand-and-deliver instruction. While such models of professional development can contribute to better teaching, they keep the focus on the adult in the room.

That focus needs to change. And teachers like Paredes are looking to make the switch — to bridge the gap between their experiences as young learners and novice teachers and current expectations for teaching and learning. Yet most teachers have never experienced the sort of inquiry-based learning we expect them to provide for their students. How can we help them make this “strange transition” and keep pace with new goals for academic success?

In our roles as a grantmaker and an advocate for teacher learning, we support organizations that bring inquiry-based lessons to life. That includes a group of leading curriculum designers and professional learning and technical assistance providers who are working directly with schools and districts. Through these partnerships, they are creating curriculum-based professional learning that helps teachers meet rigorous expectations for student achievement. Over the past year, we have studied these efforts to identify what teachers need most and how best to provide it.

That work begins by establishing a clear understanding of what we mean by curriculum and instructional materials. A *curriculum* is the design teachers use to plan, implement, and assess the learning outcomes for students. A high-quality curriculum includes standards-aligned instructional materials that teachers use, as well as resources that states and districts provide to support instruction, such as state standards, frameworks, scope and sequences, district instructional guidance, and interim assessments. The terms *instructional materials* and *curriculum materials* refer to the concrete resources that teachers use to provide standards-aligned learning experiences for students, as well as those that offer support and guidance for teachers on how to teach the materials. When instructional or curriculum materials support both student and teacher learning, they are considered *educative curriculum materials*.

Finally, when we refer to *high-quality instructional materials*, we mean those that include specific learning goals and lessons aligned to content standards, student-centered approaches to inquiry-based learning, research-based teaching strategies, teacher support materials, and embedded formative assessments to effectively help teachers implement instructional units and courses that are integrated, coherent, and sequenced.

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Curriculum-based professional learning invites teachers to participate in the same sort of rich, inquiry-based learning that new academic standards require. Such learning places the focus squarely on curriculum. It is rooted in ongoing, active experiences that prompt teachers to change their instructional practices, expand their content knowledge, and challenge their beliefs. That stands in contrast to traditional teacher training, which typically relays a static mass of information that teachers selectively apply to existing practice.

Instead of a one-time workshop, facilitators guide a series of focused, small-group sessions that are structured like a typical day's lesson, allowing teachers to experience instruction as their students will. Working together, teachers rehearse lessons and address common concerns. They deepen their subject knowledge and fine-tune their instructional approaches, growing fluent in the curriculum's rigorous content and sequence of learning. Over time, both inside and outside their classrooms, teachers see firsthand how their day-to-day choices can enrich or cut short inquiry-based learning. These experiences help reshape their beliefs and assumptions about what their students can achieve.

This vision of professional learning uses curriculum as both a lever and a guide, helping link teachers' actions and ideas to new standards in a concrete, focused way. Done right, it can close the gap between the experiences we provide for teachers and those we want them to provide for students. Given the challenges teachers and students are currently experiencing as they adapt to remote instructional platforms, such learning is especially crucial to their success.

The Trouble with Teacher “Development”



“Even high-quality professional development must be directly relevant to the needs of teachers and genuinely improve teaching and learning. And low-quality professional development, frankly, feels like detention.”

— Randi Weingarten, president, American Federation of Teachers¹

Teachers, unions, schools, and districts all seem to agree on the importance of teacher learning. The United States spends an estimated \$18 billion on professional development programs every year, and teachers spend more than a week’s worth of time participating in them.² From training seminars to coaching and small-group study, professional development is a major investment of money and time.

But research shows that most of these efforts do not achieve substantial positive impacts on teacher performance or student outcomes.³ Studies also reveal a broad gap between the short-term, isolated experiences that typify professional development and the ongoing, content-focused, job-embedded professional learning that can help teachers and their students excel.⁴ Most professional development takes the form of a workshop that may not be relevant to every teacher who attends.⁵ Even when learning is focused on a particular content area, it tends to be short-lived, with most teachers participating in less than 16 hours of activities — on the order of a seminar or two in a year.⁶

Interestingly, teachers don’t seem to have soured on the idea of professional development in general. They just want to get more out of it.⁷ In a 2016 survey, 97 percent of teachers agreed that they “want effective, ongoing, relevant professional development,” and 84 percent expressed a desire for “more professional development that is tailored to my needs.” The topic they wished for most was “instructional strategies in my subject area(s).”⁸

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*The implications are clear.
Curriculum matters, but
how teachers use curriculum
matters even more.*

At the same time, most teachers are not yet using rigorous curricula aligned with new academic standards. Just 7 percent of the nation's elementary school reading teachers use at least one standards-aligned instructional tool in classroom instruction. In middle schools, where standards-aligned instructional materials are most prevalent, only about one in four English teachers and one in three math teachers use them.⁹ In addition, most students still spend most of their time in direct instruction. In middle school science classes, for example, 92 percent of classes include lectures at least once a week. While 89 percent also include whole-class discussion, just 63 percent feature hands-on labs or other active learning activities at least once a week.¹⁰

Not surprisingly, teachers have been stepping into the breach and designing new types of lessons themselves. More than half of U.S. teachers craft curriculum for their students, either by borrowing from multiple sources or creating their own materials. Nearly one in three say their principals encourage them to plan lessons from scratch. Some 19 percent say they customize curriculum for their classrooms. These teachers are more likely to report that their students engage in standards-aligned activities.¹¹

Such hard work and creativity are laudable, but teachers do not have unlimited time and resources, and we should not expect 3.7 million people to develop their own ways of doing things. There is a longstanding myth that creative lesson planning is the mark of a great teacher. A more consistent, equitable, and commonsense approach would be to relieve teachers of curriculum development responsibilities and let them focus their energy where it matters most for student outcomes — on classroom instruction.

Still, the impulse behind these efforts is correct. The curriculum teachers use matters greatly to student learning. Several studies comparing student performance based on the textbooks their teachers use have found major differences in achievement.¹² Using better instructional materials boosts student outcomes just as much as having a better teacher at the front of the room.¹³

What if students could have both? The positive effects for students are amplified when strong curriculum is paired with strong professional learning: not only are students working with more rigorous instructional materials, but they also have a more skillful teacher to guide them. One study found that when teachers participated in curriculum-based professional learning, their students' test scores improved by 9 percent of a standard deviation — about the same effect caused by replacing an average teacher with a top performer or reducing class size by 15 percent. When students' teachers used new curriculum but not did receive professional learning support, the impact was smaller, at 6 percent of a standard deviation.¹⁴

The implications are clear. Curriculum matters, but how teachers use curriculum matters even more. As schools and districts continue to make shifts in the instructional materials they use, and amid ongoing challenges, teachers deserve the highest quality professional learning to support curriculum implementation.

Six Fundamental Shifts

Traditional teacher professional development often takes the form of a lecture-heavy workshop that is disconnected from the day-to-day lessons teachers lead. By contrast, curriculum-based professional learning is active, ongoing, and focused on improving the rigor and impact of teachers' lessons. It calls for six major shifts.

| FROM TRADITIONAL TEACHER PROFESSIONAL DEVELOPMENT | TO CURRICULUM-BASED PROFESSIONAL LEARNING |
|--|---|
| Focused on topics or themes | Focused on instructional materials with specific teaching strategies |
| One-time workshops, usually when school is closed | Repeated sessions, coaching, and feedback opportunities during teachers' regular workdays |
| Teachers grouped by school | Teachers grouped by the curriculum they are using |
| Information shared in lectures, presentations, or Q&A discussions | Active learning experiences, such as practicing instruction or participating in lessons as students |
| Coaching and feedback reserved mostly for new or struggling teachers | Curriculum-focused coaching and feedback for all teachers |
| Selected teachers receive support for using new curriculum materials | All teachers using new materials participate in curriculum-based professional learning |

By reshaping current practices with the Elements and Essentials as a guide, we can help teachers develop the skills, knowledge, and understanding they need to set all students up for success.

THE ELEMENTS OF CURRICULUM-BASED PROFESSIONAL LEARNING



What we describe are fundamental changes to both curriculum and professional learning. But these changes are well within reach for schools and districts. In fact, a growing group of public schools, charter schools, and districts are already seeing the benefits of this approach. How did they do it?

To find out, we closely studied a diverse mix of schools and districts, all of which are successfully using new curricula in partnership with Carnegie Corporation of New York grantees. First, we conducted an in-depth review of the research base. We wanted to investigate the proven potential of new curriculum and innovative models of teacher learning to advance student achievement. Then, we conducted some research of our own and convened a group of leading curriculum developers, organizations that support teacher learning, and their school and district partners to gather at the Corporation's headquarters for a candid conversation in fall 2019. Over two days, and later in more than two dozen follow-up interviews, we asked questions, listened closely, and learned.

We wanted to know about the specific challenges they faced. What academic struggles propelled the move to a new curriculum and approach to professional learning? What logistical hurdles were the toughest to overcome? We also explored the actions that contributed to their success. What tactics helped reset expectations for what students and teachers could do? How did support from outsiders, such as curriculum designers, professional learning providers, and instructional coaches, help build a stable base for change? What learning experiences did teachers value most?

The students and communities these educators serve are remarkably diverse, spanning all 50 states and virtually every socioeconomic and ethnic group. Some are part of large, urban systems, while others are small, more rural schools. Yet across these settings, and in line with what the literature and research base suggest about curriculum and teacher learning, a common story emerged.

We identified a core set of actions, approaches, and enabling conditions that effective schools and systems had put in place to reinforce and amplify the power of high-quality curriculum and skillful teaching. We call these the *Elements of Curriculum-Based Professional Learning*, or simply the *Elements*.

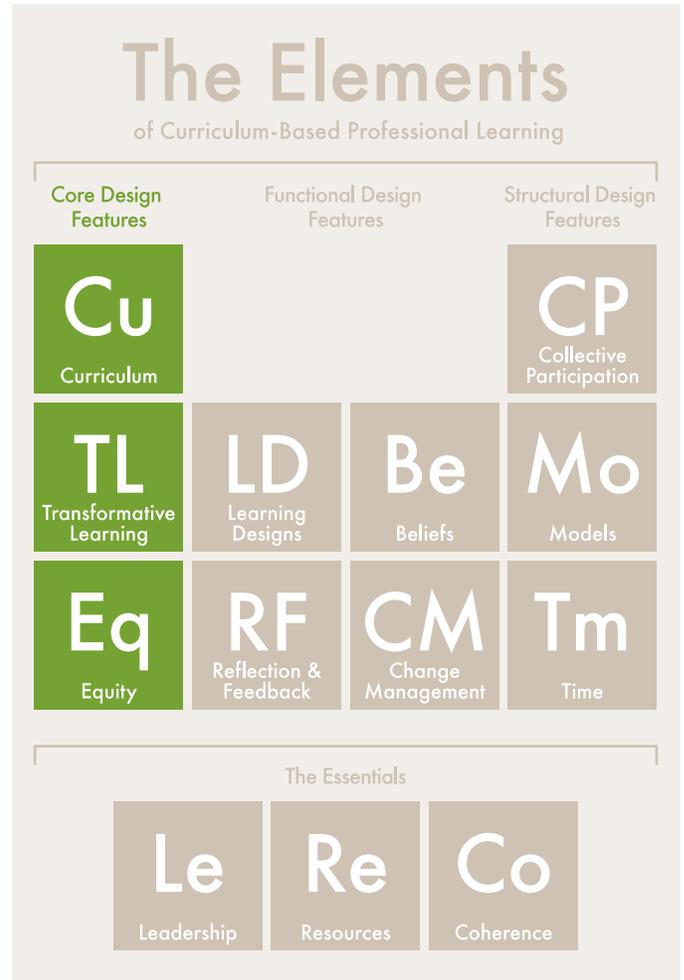
The Elements encompass actions big and small, from purposefully selecting a strong curriculum to planning efficient teacher meetings wholly focused on instruction. In this paper, we define each of the 10 Elements and show how school and district leaders, curriculum developers, and organizations that support teacher development can apply them in their roles and communities. We also identify foundational conditions system leaders must establish to ensure that curriculum-based professional learning can thrive. We call these the *Essentials*.

Taken together, the Elements and Essentials offer a foundation for practitioners looking to undertake this work. They also serve as a call to action. This powerful approach to curriculum reform and professional learning knits together two influential aspects of a child's education: teachers' skillfulness and the quality of the instructional materials they use. By reshaping current practices with the Elements and Essentials as a guide, we can help teachers develop the skills, knowledge, and understanding they need to set all students up for success.

CORE DESIGN FEATURES

Curriculum-based professional learning has three Elements at its core: rigorous, standards-aligned **curriculum** with guidance for teachers on what to teach and how to use the instructional materials; **transformative learning** experiences that shift teachers' beliefs, perceptions, and practices; and the development of teachers' understanding of how to prioritize and promote **equity** through high expectations and culturally relevant instruction.

These core design features identify the purpose of curriculum-based professional learning. This work requires careful decisions by professional learning designers and facilitators, system leaders, and instructional coaches. Together, the core design features can elevate teaching and learning across schools and districts, ensuring every teacher is prepared to lead engaging, rigorous, and relevant instruction.





“You have to understand the what and the why and the how behind each of the moves that are happening in these lessons.”

– Dianna Newman, principal, Parkside Elementary School,
Charlotte-Mecklenburg Schools

Good teaching is rocket science. Teachers achieve this remarkable feat when they apply sophisticated instructional approaches that require a deep understanding of the subject matter and how students learn.¹⁵ When they do, students learn and grow at a rapid clip. They take on tough topics and complete in-depth assignments. They persist through uncertainty, grow more curious and confident in their abilities, and master complex skills and content.

Curriculum is at the heart of these efforts. A well-designed, high-quality curriculum charts a course for student learning by setting in motion a sequence of experiences that build knowledge and skills and create strong critical thinkers. Through textbooks, teachers’ guides, classroom assessments, and other instructional tools, curriculum establishes the pace and pathways for student progress. High-quality curriculum and well-chosen instructional materials can also do the same for teachers.

Curriculum materials shape and enhance the relationships between teachers, students, and content. They establish what is to be taught, how it should be taught, and how teachers should engage with students to build their understanding.¹⁶ High-quality curriculum materials promote teaching strategies that support student discourse and help students make meaning from their experiences, as well as tactics for situating class activities within academic content and standards.

Educative curriculum materials offer a learning sequence for teachers as well as students. Pairing strong curriculum with professional learning amplifies the power of curriculum to drive student learning.¹⁷ It also builds teachers’ understanding of how students learn rigorous subject matter best.¹⁸

Because inquiry-based classrooms use challenging texts and require students to take an active role, they draw on instructional knowledge, habits, and skills that are outside most traditional teacher preparation and professional development programs. District and school leaders and curriculum designers can promote inquiry-based learning by ensuring that instructional materials and professional learning experiences help teachers bridge the gaps in their preparation. Curriculum-based professional learning enhances teachers’ ability to engage students with rigorous content. It expands their subject-matter knowledge and instructional expertise through study, practice, reflection, and feedback.

Working with well-designed educative curriculum materials can transform the teaching experience.¹⁹ Rather than seeking out supplementary materials or redesigning lessons that don’t feel like a good fit, teachers develop a deep understanding of the underlying concepts and structures that knit the curriculum together. As they learn, they enhance their content knowledge and their understanding of the rationale for the curriculum’s learning sequences. Instead of redesigning lessons, they spend their limited time preparing to use high-quality instructional materials nimbly, freeing up energy to foster relationships with students and push them to meet rigorous standards.

Curriculum builds teachers’ disciplinary content knowledge, pedagogical knowledge, and pedagogical content knowledge by using high-quality educative instructional materials.

Putting Curriculum to Work

This view of learning from curriculum materials represents three major shifts from the way most professional development occurs:

- **From developer to engineer:** Instead of thinking of standards as a starting point for developing their own lesson plans, teachers study and experience the underlying structures and internal logic in high-quality curriculum materials so that they can guide students through a well-designed sequence of learning.
- **Combine content and instructional expertise:** Rather than focusing on one aspect of a subject or on a particular instructional technique, curriculum-based professional learning uses lessons directly from the curriculum to deepen teachers' content knowledge. Teachers enhance their subject-matter expertise while practicing how to teach complex content to their students.
- **Talking points, but not a script:** Developing fluency in a curriculum does not mean simply following it to the letter; teachers should still adjust their instruction to meet students' needs. Educative materials and support can help teachers become comfortable conducting learning activities that keep students on track to meet ambitious goals. They should help teachers anticipate likely challenges, offer context and suggestions, and prompt teachers to rehearse instruction with a wide range of student questions and discoveries in mind.



CURRICULUM IN ACTION *Charlotte-Mecklenburg Schools and EL Education*

When Charlotte-Mecklenburg Schools in North Carolina took a close look at reading instruction across the K-12 district a few years ago, what it found was far from ideal. The district had adopted rigorous academic standards in the early 2000s, but 76 percent of classes were still working below grade level. Instruction varied broadly from one classroom to the next, and achievement was suffering, particularly among students of color. Yet there seemed to be no shortage of energy or effort by district teachers, who reported spending 7–10 hours online every week searching for standards-aligned lessons and materials.

“There was just very little coherence across our district in terms of curriculum and equitable instructional practices,” said Brian Kingsley, chief academic officer. “And that was not an indictment of our teachers. We just simply didn’t provide for it.”

The district gathered an inclusive group of educators, leaders, students, families, and members of the broader community to discuss what was needed in a new language arts curriculum — one that was aligned to current standards, included educative materials, and would be joyful and relevant to students. As a result of that discussion, the district selected EL Education’s language arts curriculum, which combines sophisticated reading, writing, and discussion activities with civic-minded social-emotional learning and deep exploration of content themes. Instructional and school leaders committed to using the curriculum’s educative materials, and Charlotte-Mecklenburg Schools contracted with EL Education to provide coaching and technical support for teachers. This was essential, as the new curriculum would affect not only what students learn and do but also the skills and understanding required of their teachers.

It was a welcome change for Principal Dianna Newman of Parkside Elementary School. A 22-year district veteran, she had opened Parkside in 2015 with staff coming from 10 different district schools. Teachers each had their own style, materials, and vision for instruction and student success, which often did not align with current academic standards.

“What seemed as though it was mastery for one person was not mastery for someone else,” Newman said. “We were Googling for days just trying to figure out viable lessons that

were aligned to the curriculum and aligned to our standards and our assessments.... We really were shooting in the dark.”

For example, in 2019, Newman observed a fourth-grade reading lesson that was supposed to teach students to compare the main ideas of two texts. In practice, though, students were provided with short paragraphs and asked to name the main idea of each one, rather than reading complex passages side by side and identifying similarities in their main ideas. The fourth-graders were actually doing second-grade work.

“The kids didn’t have to write anything. They didn’t have to share their thinking,” Newman said. “There wasn’t really an in-depth process that the teacher took the kids through, and they certainly didn’t have to think very hard or very much to get to the correct response.”

In EL Education’s language arts curriculum, student work is organized into nine-week modules, each centered on a subject; in the early grades, these are kid-friendly topics, such as frogs or bird species. Daily lessons build students’ content knowledge and literacy skills and include recurring writing, reading, and discussion activities. The teacher’s role is to foster close reading, complex thinking, and deft expression in speaking and writing.

The district began with 2,500 teachers in the elementary grades, with a two-day launch event at the start of summer 2019 and additional grade-band meetings throughout the 2019–20 school year. Teachers were observed and coached by their principals, instructional leaders, and literacy coaches, who were studying the curriculum during regular community-of-practice meetings so that they could support ongoing professional learning. There were weekly phone calls between the district and the curriculum designer and optional virtual learning programs for school and instructional leaders. Early on, teachers’ shared planning time was used for studying the curriculum together.

EL Education’s professional learning is “built by design to mirror the pedagogical practices that are baked into the curriculum,” said Amy Bailey, the organization’s chief partnership officer. Instructional moves and strategies from the curriculum also lend structure to professional learning for teachers with features such as learning targets, “I can” statements, and opportunities for reflection. In learning sessions, teachers experience the same type of instruction they are expected to provide for their students.

“There are moments where you see a teacher is given a very complex text to read and analyze and think about and give

a gist on, or follow a protocol, and they understand what it might feel like for a young student to be in a text that is really pushing them and is uncomfortable,” said Bailey. “At our best, we are able to create an experience for a teacher that allows them to deeply empathize with the experience their kids are going to have. Instead of answering their questions, we’ll say things like, ‘Great question – keep working with your group.’ It can be frustrating, but that’s where we see real learning and engagement in productive struggle.”

Changes like these are not easy to make. Teachers were being asked to stop using lesson plans they had worked hard to develop. And while the new curriculum’s instructional guides are highly detailed, with up to 14 pages of instructional support for a single lesson, the curriculum is far from easy to adopt. Classroom discussion flows from student discovery, so teachers cannot rely on a script. Instead, they must become expert facilitators and understand the underlying logic that guides each lesson to ensure that students progress toward appropriately challenging goals.

When Parkside’s teachers met to study upcoming lessons, they soon began rehearsing components of each lesson. Participating in the lesson, either as teacher or learner, was more valuable than simply discussing it; hands-on practice is a powerful way to learn. Teachers constantly make choices in the moment. They guide students’ experiences. By walking through activities together before engaging in them with students, teachers were prepared to impart a lesson’s essential takeaways no matter what direction the discussion took.

After a few months, Parkside was filled with evidence of teachers’ and students’ efforts. Throughout the building, classrooms and hallways were decorated with writing projects. A third-grade teacher who had been uncomfortable with group work was successfully facilitating student-led discussions. And teachers were comparing essays with those from past years and seeing a major difference in students’ sophistication of thought and self-expression.

“The shift was a difficult one for teachers,” said Newman. “But once teachers realized that there is value – that these curriculum materials are beautifully written, and my leaders and my administrators are willing to work alongside me to help me get where I need to go – I feel like they embraced it a lot more.”

Transformative Learning



“I think that for something to stick, and for our staff to be excited about it, they have to themselves see the benefits of it.”

— Dana Carter, principal, Gladstone Elementary School

When it comes to choosing what’s best for their students, most teachers draw on their own experiences in the classroom. But those trusted techniques are a poor match for today’s standards and curriculum. Teachers are now asked to engage students with more challenging content and to cede center stage — to change both what they teach and how they teach it. To do that, they need to revisit their underlying beliefs about teaching and learning.

Transformative learning occurs when professional learning challenges teachers’ long-held ideas about what students can do.²⁰ For teachers to successfully use new inquiry-based curriculum materials, they cannot merely switch to a different textbook and go on teaching in the same way. They need to rethink what’s possible in terms of engaging their students with rigorous content, and they need to reimagine what effective instruction looks like.

Teachers can be skeptical of inspirational promises from outsiders and experts. They are fiercely protective of their students and need direct experience with new curriculum materials to trust that they can work. But teachers also are highly adaptable once the benefits to students are clear. Effective curriculum-based professional learning starts with experiences that promote changes in instructional practice that produce better outcomes for students. These experiences are designed to contradict teachers’ assumptions and disturb their equilibrium. To address the dissonance, teachers need to experience curriculum materials as learners and have opportunities to use them with support and arrive at a new understanding of students’ capabilities.

For example, learning facilitators could teach lessons from high-quality curriculum materials with teachers participating as students. Wearing a “student hat” gives teachers a novel vantage point, showing them what it feels like to experience the curriculum as a student and providing evidence that unfamiliar lessons can work well. A teacher could then teach the same lessons to students with support from an instructional coach, disproving the notion that the rigorous instructional approaches that sound great on paper couldn’t work in a particular school or classroom. These activities build teachers’ understanding and trust in the curriculum’s design.

Transformative learning is a continual process. Ongoing professional learning must support teachers as they teach the curriculum in their own classrooms and track its impact on their students, including by giving teachers regular opportunities to think deeply about the structure and intent of their lessons. Through repeated cycles of learning, teachers try new instructional practices, reflect on and revise old habits, and change their practices and beliefs over time.²¹ This type of learning supports a broad vision for lasting change while still being rooted in teachers’ direct experience.

Transformative Learning changes teachers’ deeply held beliefs, knowledge, and habits of practice through intentional design.



Putting Transformative Learning to Work

This view of transformative learning represents three major shifts from the way most professional development occurs:

- **Experiences, not speeches:** School districts spend thousands of dollars on motivational speakers with generic messages of inspiration, and most professional development takes the form of one-time seminars or presentations. However, teachers are active learners who construct their knowledge and beliefs based on direct experience. Teachers need to experience curriculum and instruction and see how an approach benefits students rather than just hearing about it.
- **Embrace discomfort:** Active learning experiences that challenge teachers' beliefs and assumptions enable new ideas and practices to take root. Learning experiences should highlight the disconnection between teachers' long-held ideas and students' ability to engage with new curriculum and instruction. For example, some teachers may believe that they could harm their students by presenting rigorous content and complex activities. Observing a classroom of similar students successfully engaging in debate, for example, may dislodge that assumption and build a foundation for new instructional practices and ideas.
- **Flip the script:** Assumptions are often unspoken and maintained by an unvarying point of view. Changing teachers' vantage points can challenge their beliefs and promote change. Taking on the student role in a lesson, for instance, provides teachers with hands-on experience and concrete insights into how they can engage their students in standards-aligned activities.

TRANSFORMATIONAL LEARNING IN ACTION *Gladstone Elementary School and Instruction Partners*

To the untrained eye, Gladstone Elementary School in Kansas City, Missouri, seemed to be thriving. It was a nurturing, supportive environment where caring teachers taught energetic classes and students were busy and happy. But academic achievement in math was persistently below expectations. The school applied for a grant and hired Instruction Partners, a curriculum and instructional support provider, to study instruction and academic standards. They determined that lessons were inconsistent across classrooms but consistently below grade level. Math classes needed to change.

At first, teachers and leaders at the small K–5 school wanted to develop their own math curriculum. Staff believed they knew their students best and that with intense study of Missouri's learning standards and guidance from Instruction Partners, they could develop high-quality learning materials for their school. Teachers prided themselves on their strong relationships with students, and using an off-the-shelf curriculum seemed at odds with the customized learning experiences they wanted to create for their 440 students.

But that approach kept the focus on what teachers were doing rather than what students were learning. To substantially change curriculum and instruction, teachers would have to change their assumptions about their role in the classroom.

"They had really internalized teaching as something you do, and something you do to kids," said Valery Dragon, director of instructional support at Instruction Partners. "Although it was a great community, it wasn't necessarily a learning organization or a learning community. So, teachers as learners, I would say, was the biggest block because teachers were performers. And the fact that they were oriented toward performance never brought about instructionally relevant conversations as part of their normal experiences as teachers."

Gladstone’s teachers and leaders, together with Instruction Partners, began studying high-quality curriculum alongside rigorous state math standards. Instruction Partners taught a sample lesson from the Eureka Math program, with teachers participating in the student role. This gave teachers direct experience and fresh insight into how inquiry-based instruction differed from their students’ daily experiences. Then, as teachers gathered materials and worked to develop their own aligned curriculum over the next year, a fast-growing group chose to use Eureka Math lessons instead. All the while, coaches and leaders were conducting classroom walk-throughs to check whether instruction was in line with academic standards and offer real-time coaching and feedback. These classroom visits were informed by the standards-driven Instructional Practice Guide developed by Student Achievement Partners, which provides tools for coaches and administrators to support teacher learning.²²

“Once the teachers started using the Eureka resources, the teachers were getting that feedback, and I think that gave them the encouragement – okay, I’m now giving my kids what they need, they’re on grade level, it’s scaffolded appropriately, it’s sequential through the grade levels,” said Gladstone Principal Dana Carter. “And I think that excited them, just to be able to give the kids what we know is right, what we learned was right from our own experience.”

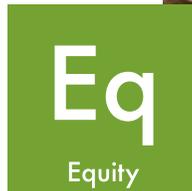
Gladstone then moved to adopt Eureka Math across the school, with supports for teachers focused on learning the new curriculum rather than developing their own. Teachers rehearsed lessons in regular meetings for their grade level and recorded videos of their classes for coaching. During classroom visits, Instruction Partners coaches would model lessons, observe, and offer suggestions. Teachers worked to change common practices that, while well-intended, compromised learning, such as not giving students enough time to struggle or allowing their own voice to fill silences and dominate discussion.

An ongoing challenge is moving from “watching” to “tracking,” Carter said. When teachers circulate throughout the classroom during student group work, they typically check for understanding and offer guidance. But more effective instruction also involves the teacher keeping track of common misconceptions and guiding students to identify and dismantle them.

Adopting Eureka Math was not a comfortable or easy process. But once teachers saw their students experience inquiry-based lessons, “there was an acceptance that what they had been giving students was not enough,” said Dragon. And because the curriculum shift and professional learning were rooted in teachers’ own experiences and built on a solid base of standards and research, they have allowed for the sort of “deep internalization” that supports dramatic, durable change, said Carter.

Otherwise, “I don’t think it would have been successful at all,” Carter said. “Typically, professional development in the district is basically an overview. ‘These are some tools that you could use. Use this strategy.’ But it’s not actually going deep into each individual lesson. It’s not preparing by playing the actual games that the students are required to play in the lesson, doing the actual math, having your questions written out. These are the things that we’re working on.”





“Kids do what is asked of them. If you ask something that is low-level, they will do the low-level work and get As. If you give them something that is higher-level, they might struggle at first, but they will push through.”

– HaMy Vu, managing director of learning and research, Teaching Lab

Ask any teacher to name the best part of their work, and the answer is nearly always the same: the students. Teachers are drawn to the classroom because they want to work with young people, and the relationships they develop with students are often the highlight of their career.

Those relationships form the foundation for **equity**, in which all students get the individualized support they need to meet high expectations for learning. In equitable schools, each student in every classroom is taught a rigorous curriculum by a well-prepared teacher. And in equitable classrooms, teachers expertly select and adapt culturally responsive teaching strategies, with rigorous lessons that honor individual students’ contexts, backgrounds, strengths, and needs. Prioritizing equity means ensuring that all students have access to rigorous curriculum and culturally relevant instruction and supporting teachers to teach that curriculum with integrity.

Equity is more than an abstract value or ideal — it is essential to the lived experience of students in classrooms and schools nationwide. Throughout the United States, families of color are systematically disadvantaged in access to a variety of resources and opportunities. Although our education system is intended to promote social mobility, it has long failed to produce equitable outcomes.

Too few students consistently experience great teaching, and too few teachers experience the professional learning that supports standards-aligned instruction. This disproportionately affects students of color, who are far less likely than their peers to have access to rigorous content and coursework.²³ Providing high-quality curriculum to all students is one important step toward equity. But the impact of curriculum may be muted if teachers don’t update their instructional practices and beliefs. Curriculum-based professional learning can unlock the potential of new curriculum and ensure that all students gain full access to the same learning opportunities.

Every day, teachers tailor learning tasks based on their perception of what students are prepared to accomplish. When they teach students who are not yet at grade level, they often choose simpler, less demanding work that the students can complete independently, eliminating opportunities for them to engage with sophisticated content and complex cognitive tasks. During class, teachers may cut short moments of struggle and lead students to a correct answer to keep the discussion moving. Teachers may also mistake students’ current preparation levels for their ability to learn rather than understand it as a reflection of their learning experiences to date. Yet research shows that when teachers hold students to high expectations, including those not yet performing at grade level, they rise to the challenge.²⁴

Putting Equity to Work

New curriculum can promote equity by creating a common foundation of rigorous expectations for all students. Instructional materials include strategies for teachers to engage underprepared students in complex, grade-level content and activities. Strong curriculum-based professional learning focuses on these scaffolds and pushes teachers to revise their assumptions about what they and their students can achieve.²⁵ In studying and using new instructional materials and techniques in their classrooms, teachers learn to foster the productive struggle all students need to gain skills and understanding.²⁶

The relationships that teachers prize are essential to these efforts. Students are more engaged when they feel their teachers care about them and believe they can succeed. Strong teacher–student relationships build students’ motivation and confidence to take risks, work hard, and meet academic challenges.²⁷ They also give teachers the information they need to ensure lessons build on students’ strengths and the knowledge they bring to class, allowing their curiosity, energy, and brilliance to come through.

Equity articulates and advances high expectations for all students and applies culturally relevant pedagogies and content consistent with a shared vision for learning and teaching.

This view of equity represents three major shifts from the way most professional development occurs:

- **Reset high expectations for all:** Leaders, curriculum designers, coaches, and teachers promote equity by ensuring it informs decision-making at all levels. Universal rigorous standards and expectations for what students can achieve must be at the forefront of curriculum selection processes, curriculum-based learning, and efforts to change classroom instruction and underlying assumptions — especially when it comes to the daily decisions that can accelerate or hinder student development. In particular, underprepared students need support, but they also need appropriately challenging, well-designed opportunities to struggle and grow.
- **Scaffold, don’t simplify:** Every student should have access to high-quality, demanding curriculum and opportunities to think critically. Every teacher should know how to scaffold learning experiences so that students are supported to engage with complex materials and activities. Promoting equity means avoiding strategies that leave underprepared students out of standards-aligned learning based on their current skill level. If a discussion centers on a highly complex text, for example, a teacher can read the text to less-prepared students and engage their thinking at a complex level, even if the prerequisite skills are not yet fully established. When teachers develop deep expertise in both content and curriculum, they can apply relevant tools and supports to ensure underprepared students complete challenging work.

- **Teacher–student relationships are key:** Students are more likely to be engaged, have a positive outlook, bring their whole selves to school, and bring a positive mindset to their schoolwork when their relationships with teachers are strong. Teachers foster these connections by showing interest and confidence in students’ abilities and respect for their communities, families, and cultures. Knowledge gained through these relationships enables teachers to select culturally relevant content and learning experiences and ensure that discussion and meaning-making affirm all students’ identities.



EQUITY IN ACTION

Lafayette Parish School System and Teaching Lab

For years, teachers in Lafayette Parish, Louisiana, worked to promote a comfortable and caring learning environment for their students. They based their English lessons on books students were able to read and sometimes helped lessons along by leading discussion and volunteering the right answers when the room fell silent. But too many students weren’t reading or writing at grade level, and they weren’t being pushed to make much progress. It was nearly impossible for instruction to meet academic standards, and if students and teachers stayed in their comfort zone, it probably never would.

In 2018–19, just 46 percent of all Lafayette Parish students passed statewide reading tests. District leaders decided to implement the rigorous Louisiana ELA Guidebooks English language arts curriculum, first among a group of the seven lowest-performing schools known as the “Transformation Zone” and later across all 45 schools. And they brought in Teaching Lab to provide curriculum-based professional learning across the 32,000-student district, reaching some 600 classroom teachers, principals, and instructional leaders.

Some teachers initially voiced frustration over the high expectations embedded in the ELA Guidebooks curriculum. While some classes and schools were working up to grade level, the average performance of students of color, students with disabilities, and lower-income students lagged far behind that of their peers. For these students, the rigor of the curriculum’s assignments seemed out of reach. Most teachers had received mediocre preparation, little to no exposure to high-quality curriculum, and no curriculum-based learning opportunities. They didn’t know how to support students who weren’t already at grade level in reading certain texts or responding to difficult writing prompts.

“We had this idea that we wanted to protect children from struggle. But not all struggle is bad,” said Catherine Guillory, an elementary ELA and library science specialist at Lafayette Parish School System. “Initially, there was an idea that this is too difficult. But if we only teach to where students are today, they won’t go any further. If we continually leave them where they are comfortable and where we are comfortable with them being, no one is going to move ahead.”

And so teachers started using the new curriculum. But when Teaching Lab coaches first visited the district in fall 2019, they “saw a lot of deviations from the curriculum in an attempt from teachers – well-meaning attempts – to try and make the curriculum more accessible,” said Partnerships Manager Sarah Tierney. In some classrooms, teachers omitted certain questions or tasks that were harder for kids to get to, she said. “There was an injection of a lot of teacher-created, seemingly in-the-moment, low-level questions that were designed to help but ended up only helping students form a baseline rather than deep understanding of the text or task at hand.”

It was a slightly better version of the instruction that had already been occurring. The main improvement was that teachers and students now had access to a high-quality, inquiry-based, rigorous curriculum. They just had to figure out how to use it.

Lafayette Parish had strengths to build on, which informed the approach the district and Teaching Lab pursued. Teachers had caring relationships with students and with one another. They had regular small-group planning sessions with colleagues. They also had data-collection systems that enabled them to track student progress. District and school leaders were on board with a change in standards and instruction. And now, teachers had materials from the ELA Guidebooks and curriculum-based professional learning.

With their coaches, teachers learned to put these tools to work. Agenda-driven planning sessions were refocused on dissecting and rehearsing lessons. In using student performance data, teachers adopted an asset-based approach, looking for students’ strengths rather than deficits as a basis for instruction. For example, after students demonstrated they had mastered pulling evidence from a text, teachers engaged them in an activity from the curriculum that prompted them to connect evidence to a claim. They built on something students could already do and challenged them to apply that skill in a more cognitively demanding way – pushing student work into a more challenging, standards-aligned realm. Then, they reported back on the experience in planning sessions, sharing what worked, what didn’t, and what common strengths and challenges they found. This cycle of inquiry enabled teachers to break big challenges into smaller steps and start to map a course to meeting higher standards.

“For many teachers, this was a new approach to how they’d been experiencing data analysis,” said Tierney.

Teachers were able to identify the specific skill that was giving students trouble within a broader learning goal, such as connecting relevant evidence to their claim, uncovering an implicit message or theme within a text, or explaining how a character’s actions impact the story’s plot. “With this approach, teachers began to feel like they could pinpoint a specific rather than general problem and uncover a solution that was somewhat feasible,” she said.

These sessions also gave teachers the opportunity to develop a standard protocol for dissecting and rehearsing lessons during their professional learning meetings. They focused on the “four Ts” for each unit: the key texts, tasks, learning targets, and topics. Teaching Lab also developed a custom version of this protocol with scaffolding for students with disabilities, English language learners, and students not yet at grade level. Teachers then used these tools with their students, giving them access to rigorous, high-quality curriculum.

“Curriculum like Guidebooks is leveling the playing field as far as equity goes,” said Randy Bernard, an academic specialist at Lafayette Parish. “You not only have those groups exposed to the curriculum, but I think when the teachers use the strategies and best practices embedded in it, they better reach all students.”

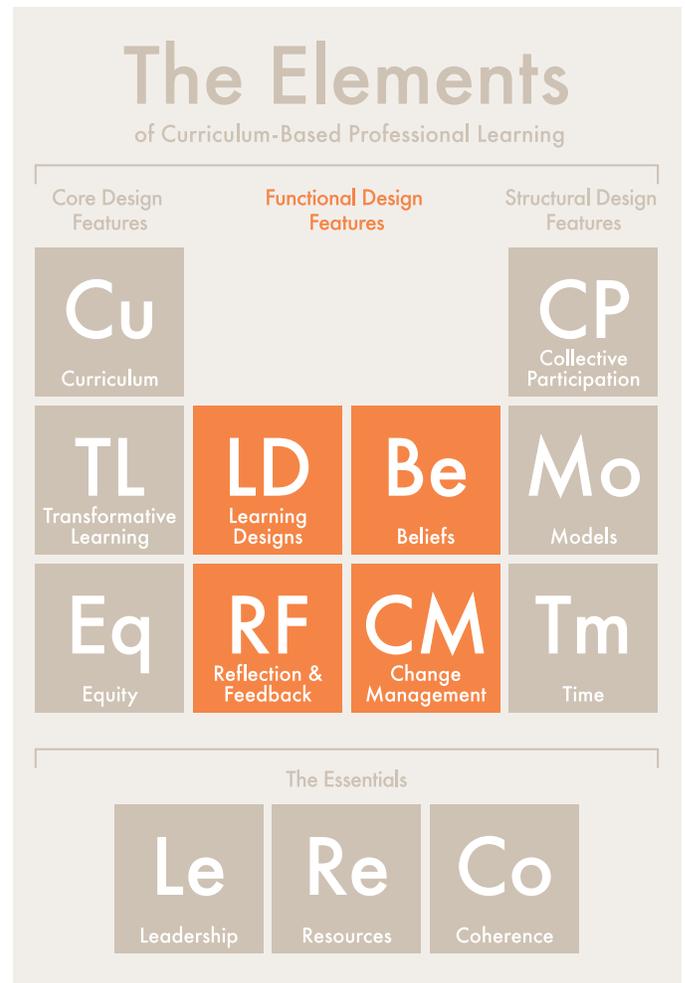
Over time, teachers gained confidence that the new curriculum would work. They also gained insights into their students’ capacity for critical thought and self-expression by taking a more culturally relevant approach to assignments. Writing prompts, for example, were revised so that instead of sharing personal experiences from outside of school, students would reflect on a common experience that took place during school, such as a recent reading or class discussion. While essays had previously reflected differences in students’ home lives, those that started with a common prompt spurred students’ interest and confidence in their work, and their writing and self-esteem flourished.

“As we progressed through the year, what we saw was a total shift in terms of what it sounded like in classrooms. Students, all of a sudden, were who you heard talking,” said Tierney. “Kids were running the classroom in the bulk of those classrooms. Not in every one, but if I had to generalize, students were having those conversations with partners and with small groups in a way that we did not see at all in the fall. In some ways, it felt like teachers had begun to let go and trust and believe that kids can actually do this.”

FUNCTIONAL DESIGN FEATURES

Effectively designed curriculum-based professional learning for teachers incorporates the same lessons found in the instructional materials used with students. It is rooted in sequenced learning experiences that focus on teachers' underlying beliefs, progressively deepen their understanding, and promote enduring changes in their practices.

Functional design features include four Elements that inform how curriculum-based professional learning works when designed and implemented. **Learning designs** prioritize inquiry-based experiences for teachers and model the sense-making strategies teachers will use with students. They also challenge teachers' **beliefs** and promote transformative learning, offer opportunities to deepen understanding through **reflection and feedback**, and include effective **change management** strategies that ensure new curriculum and instructional approaches will last. Taken together, these Elements link curriculum with changes in teachers' classroom practices to accelerate learning for all students.





“It at times can feel slightly corny to pretend you’re a seventh-grader, but I think it’s really necessary so you’re comfortable with the awkward silences that could happen in your classroom.... That thinking time, trusting what your students are saying and asking, trusting that it comes together — that was the biggest shift for me.”

— Roselynn Rodriguez, middle school science teacher, Boston Public Schools

Powerful learning is the result of deliberate design. Strong curriculum-based professional learning is inspired by a new vision for teaching that is guided by subject matter and specific instructional materials. These experiences are shaped by **learning designs** that build on teachers’ empathy for their students and challenge their beliefs about what students can do.

In science, for example, this vision for instruction involves teachers prompting students to observe and ask questions to investigate the world around them and build a complex understanding on that foundation. Rather than introducing scientific concepts and language in the abstract, teachers have students reflect on concrete experiences and use evidence to develop models and construct explanations. Students don’t primarily learn by reading about science; rather, they reason their way to scientific knowledge as they seek explanations for everyday phenomena.

Effective curriculum-based professional learning operates in a similar manner. Curriculum-based professional learning experiences are most successful when they are designed to move teachers through different stages of learning.²⁸ Like their students, teachers engage in sense-making, though that plays out differently because teachers have different experiences and needs.

When teachers first encounter new instructional materials, professional learning begins with an in-depth look at how they are organized. Skillful facilitators guide teachers to recognize the storyline or arc of the unit and lesson sequence before focusing on individual lessons. Then, they demonstrate how the lessons work and build on one another and emphasize how learning should unfold. As part of this introduction, teachers view sample lessons or watch videos of lessons from a district where students have similar strengths and needs. They also spend time surfacing assumptions and beliefs about how to teach their subject and how to engage students in grade-level content.

Then, teachers try the curriculum materials out for themselves. Often, they’re given the opportunity to put on a student hat and participate in a lesson. Led by a facilitator, teachers become student learners and temporarily set aside their subject-matter expertise. By experiencing the curriculum themselves, teachers can anticipate the questions and ideas their students might voice in class and see how expert facilitation can guide discussion toward a learning goal. This experience enriches teachers’ understanding of the curriculum and can deepen their content understanding as well by prompting them to approach their subject from an unfamiliar starting point. They explore the questions, misconceptions, and discoveries most likely to shape their students’ thinking and work.

Putting Learning Designs to Work

Following this experience, teachers return to their usual vantage points to reflect on their experiences as students and revisit their initial assumptions about instruction and the new curriculum. They collaborate with colleagues who teach the same subject or grade to prepare to use the instructional materials in their classrooms.

Once teachers begin using the curriculum, they receive individualized support from teacher leaders or coaches. They also receive ongoing opportunities to reflect with colleagues who teach the same subject or grade band. Together, they plan, study, and rehearse units and lessons before they teach them. Teachers continually enhance their expertise and eventually take on roles as teacher leaders, where they coach new colleagues through these early learning stages.

Learning Designs engage teachers as learners through inquiry and sense-making while using the same instructional materials their students will use.



This approach to learning designs represents three major shifts from the way most professional development occurs:

- **Shift teachers' perspectives:** Rather than tell teachers about a curriculum, let them experience it for themselves. Putting on a student hat can help teachers trust that student-led discussions can be productive and anticipate questions and ideas that will likely surface.
- **A mirror image:** Teachers should engage in the same sort of inquiry and reflection that they will have students engage in. In curriculum-based professional learning, teacher learning is the focus and the goal, so each activity engages teachers in discussion and reflection about what contributed to their development.
- **Build homegrown expertise:** Curriculum-based professional learning extends past the launch of a new curriculum. Veteran teachers continue to implement the learning designs introduced in orientation sessions and support each other in preparing to teach future units and lessons. As new teachers are hired, they too will need support to understand how to use the school's curriculum. Schools and districts will benefit from investing in teacher leaders and other instructional leaders to provide immersive learning opportunities and ongoing coaching.

LEARNING DESIGNS IN ACTION

Boston Public Schools and OpenSciEd

"I picked a banana, and I said a banana consists of carbs and proteins," the seventh-grader begins, gearing up to answer two big questions about her chosen food – where does it come from, and where does it go next? She details the elements that make up the fruit: carbon, oxygen, hydrogen, nitrogen, and sulfur. Those include the ingredients for water, or H₂O, she tells the class – with an unwelcome addition.

"I remember when I went to Florida, and they had really stinky water, and they told me that their stinky water was because it contained sulfur." Ewww. But her classmates notice something else about the ingredients list, too.

"You could have one substance and then take it apart and make other substances out of the same elements," another student says.

Then, the teacher chimes in. "So, we have this idea that we're building things, we're making substances – is it like Legos, and we're putting them together in different combinations?" she asks.

Bingo. That's one way the OpenSciEd curriculum develops students' understanding of scientific phenomena using a storyline approach. The curriculum follows a logical sequence of learning and is driven by student inquiry. That includes the current putting-the-pieces-together exercise, which prompts students to determine what they know based on the evidence they've gathered so far and what they still need to find out to answer a scientific question.

But in this case, the "class" is actually part of OpenSciEd's professional learning for teachers, and the "seventh-graders" are actually middle school science teachers. Putting on a student hat is a critical part of OpenSciEd's professional learning experience for teachers.

Each unit in the curriculum starts with a familiar object or experience, like an insulated thermos or a booming car stereo, and prompts students to explore the scientific phenomena behind it. After this anchoring experience, students discuss their questions, and a teacher helps them hone in on the science content and learning goals. (In the case of the banana discussion, the academic focus is metabolism involving food molecules.)

The curriculum is deliberately sequenced, based on an inquiry-driven approach, and designed for the Next Generation Science Standards. Whereas traditional science lessons often start with a teacher introducing vocabulary and information about a science topic, OpenSciEd's instructional approach prompts students to notice the world around them, ask questions, and seek explanations to understand the scientific phenomena at play. The curriculum is concrete and universally relevant, and it focuses on what students know and can figure out rather than what teachers know and can tell them. Teachers orchestrate discussion instead of relaying information, and students often ask questions their teachers may not be prepared to answer.

"It's a shift you have to make, to become comfortable with not knowing the answers and that being okay, and really relying heavily on student input. They are the ones driving the car," said Roselynn Rodriguez, who is piloting the OpenSciEd curriculum with her students at the Rafael Hernández Two-Way Bilingual School in Boston. "That can seem a little scary at first, but it's actually something that I really appreciated from participating in the professional development that we were provided, practicing that."

The Boston pilot began with a four-day professional learning foundational program over the summer for two dozen district teachers – an "anchoring experience" of sorts. Teachers in grades 6, 7, and 8 began by watching and discussing videos of lessons that demonstrated the instructional routines in the OpenSciEd instructional model. Afterward, they met in small groups to learn how these routines are used in specific units. They then experienced lessons from those units as their students would.

It's been an effective approach for the district, which is preparing to adopt OpenSciEd more broadly, said Marianne Dunne, senior project coordinator with the Boston Public Schools Science Department.



“We’re trying to shift the vision of what a middle school science classroom can look like.”

– Katherine McNeill, professor of science education, Boston College

“They do a lot of shifting perspective,” said Dunne. “What will your students be doing and saying? What might they come up with? That’s a feature for me that I think is really powerful. Because teachers will be like, ‘Wait, what if it doesn’t go this way? How am I going to know what to do?’ And then we put our teacher hats back on and discuss: here’s what we’ve seen, and here’s how it goes.”

OpenSciEd professional learning continues throughout the school year. During the winter, teachers gather again for a two-day workshop before starting a new unit. They practice lessons and explore topics they have chosen through a survey, such as assessment and diverse learners.

Survey data also have revealed critical changes in teachers’ beliefs about science teaching. By experiencing the curriculum as students, teachers temporarily discard their scientific knowledge and encounter the questions as their students will. This prevents them from skipping ahead and helps them distinguish between wrong answers and incomplete learning. An important mental shift takes place as teachers come to trust students at all levels of academic performance to engage with complex, rigorous thinking and content.

“One of the areas that we saw a real shift in beliefs is around whether or not you need to preteach vocabulary and science ideas to kids. Do I need to start off my thermal energy unit by defining thermal energy, and then the rest of the unit is just reinforcing that? OpenSciEd has really flipped that – you’re starting with the kids’ language and with the kids’ ideas, which can help support much greater equity in terms of engaging a much wider range of students who are bringing different backgrounds and resources to the classroom,” said Katherine McNeill, a professor of science education at Boston College, who helps lead the development of OpenSciEd’s professional learning curriculum.

“We’re trying to shift the vision of what a middle school science classroom can look like,” she said. “And those experiences and reflections with colleagues can really change what people are thinking and change what they think is possible – much more so than if teachers are sitting at home reading a curriculum the night before they go use it in their classroom.”

“If you think about it, the teacher has a lot of control. The teacher is with the students every day. The teacher is who determines what lesson gets put in front of students. And so, if you don’t build teacher buy-in and leadership, and if teachers, in their hearts, don’t believe that this is important and that students can learn at this rigorous level, then the instructional shifts are just not going to happen.”

– Sarah Johnson, chief executive officer, Teaching Lab



Traditionally, students have been expected to recall facts and master skills. Critical thinking has mostly been reserved for enrichment after a foundation of knowledge is secured. As a result, many teachers spend their limited time drilling down to the basics and ensuring that students memorize everything they need to know. Preparation and lesson planning focus on teacher-led presentations that engage and efficiently relay content to students so that information will stick.

By contrast, new academic standards and high-quality instructional materials put student thinking front and center. Students are asked to think rather than memorize, to reason rather than imitate. Lessons look and feel unfamiliar — students imperfectly interpret and apply independent reasoning, and group work and discussion nudge them toward better answers and content mastery. Teaching becomes a process of provoking students to think critically and guiding them along productive paths to reach intended outcomes. Teachers have to let go of leading and give students a different type of support while keeping pace with academic expectations.

Just as this type of curriculum prioritizes student thinking, curriculum-based professional learning prioritizes teacher thinking. Both the curriculum and the professional learning ask teachers to examine their **beliefs** about what effective instruction looks like and their role in the classroom.

Beliefs are addressed through two stages of development.²⁹ The first is catalyzed by a disruptive experience, something that contradicts the tenets underlying teachers’ daily practice or their assumptions about what they or their students can do. This experience can take different forms, depending on the teacher or school, such as putting on a student hat and participating in a lesson, observing a lesson taught to students who

resemble those in a teacher’s classroom or school, or seeing a colleague use new instructional materials and experience outsized gains in student learning. The goal is to promote cognitive dissonance — a state of discomfort that occurs when new information clashes with preexisting beliefs.

Then, teachers need time and space to reflect on this dissonance with their coaches and colleagues. Through reflection, they can make sense of new information and examine any deep-seated beliefs that have been surfaced. This second stage of development involves small-group discussion, guided reflection, and detailed curriculum study. Through this reflective work, teachers can resolve the dissonance between certain long-held beliefs about teaching and learning and what the new curriculum requires.³⁰

Without ensuring that teachers fully understand and buy into new paradigms of student learning and success, we can’t expect them to embrace new curriculum. When curriculum-based professional learning is embedded in teachers’ daily jobs and in curriculum reform, it deepens teachers’ understanding of the instructional materials and minimizes their use of shortcuts and simplifications that can shortchange student learning.

Beliefs address teachers’ ideas and assumptions about how to teach specific content, how students learn the same content, and how high-quality instructional materials provide productive ways to support student learning.

Putting Beliefs to Work

This view of beliefs represents three major shifts from the way most professional development occurs:

- **Rock the boat:** To kick-start new ideas, give teachers evidence of what works, and ask them what they think about it. A disruptive learning experience, such as putting on a student hat during a model lesson or seeing a lesson taught in an authentic setting, can launch a conversation on teachers’ assumptions about instruction.
- **Reflect and resolve:** Reflection should be part of teachers’ cycle of learning and rooted in their experiences. Channeling teachers’ discoveries and discomfort into new practices and beliefs is a critical aspect of curriculum-based professional learning. Teachers need ongoing, job-embedded opportunities to work with their colleagues, resolve cognitive dissonance, and discuss, update, and clarify their thinking.
- **Seek clarity:** Discussions or reflections about beliefs often start with general statements of values, such as “All kids can learn.” But they must go deeper than that. Individual teachers have built their belief systems over time, and they won’t all need the same type of disruptive experience to prompt change. Learning experiences should be tailored to schools and teachers, and efforts to make meaning and resolve cognitive dissonance should be connected to teachers’ own students. Facilitated conversations and well-chosen writing exercises can prompt teachers to think critically about their practices and students’ experiences.

Reflection and Feedback



“As teachers integrate this new curriculum into their practice, they do not need feedback that is evaluative. Teachers need a regular cadence of feedback that focuses on changes in practice and enhances implementation.”

– Janise Lane, executive director of teaching and learning, Baltimore City Public Schools

Few people can learn in a vacuum — all but the most solitary creatures among us crave **reflection and feedback** on our work. Performance conversations contribute to each stage of the learning cycle for both students and adults. Without regular opportunities for teachers to reflect and receive feedback, their practice can plateau.³¹

New instructional materials are designed with this understanding and include moments of reflection and feedback to help students learn to develop, share, and act on insights from one another. Frequent assessments and student surveys give teachers timely, ongoing feedback about what students are experiencing and learning.



Similarly, high-quality curriculum-based professional learning embeds reflection and feedback in various forms, ranging from an explicit step in the learning cycle to a quick step-back during learning activities with fellow teachers, coaches, and teacher leaders. Through reflection and feedback, teachers can articulate and challenge their beliefs, gain context for their work and experiences, and deepen their curriculum and content knowledge. These processes offer powerful opportunities to think and learn.

Reflection is introduced early and reintroduced frequently in the process of curriculum implementation. After teachers first encounter new instructional materials, they may be asked to reflect on their previous experiences and how they differ from this new type of teaching and learning. Individually and in small groups, teachers consider and articulate their strengths and weaknesses in light of the new materials, as well as their aspirations and intended outcomes for students.

These detailed conversations help teachers understand how to apply new instructional materials within the context of their school and how to use their knowledge of students’ culture, needs, and interests to make lessons and materials more relevant and engaging. They also prompt teachers and instructional leaders to establish reflection as an ongoing priority. Time for reflection is then built into individual and team learning cycles to ensure that teachers actively reflect on their learning and application of new materials with students.

Putting Reflection and Feedback to Work

The types of feedback that lead to meaningful growth among teachers look nothing like letter grades. Feedback comes from a variety of perspectives and may be spoken or written. For example, a professional colleague, coach, or leader may offer specific, data-driven feedback based on shared definitions and understandings. When a coach or peer observes a lesson and raises questions, their feedback creates a foundation for conversations about goals for improved teacher practice and implementation of instructional materials.³² Ultimately, the value of feedback is measured by the changes it prompts.

Another type of feedback comes from students. Students provide teachers with feedback on instruction all the time. Those who are enthusiastic and engaged provide one type of obvious feedback, but disinterested students provide critical feedback, too. When students mentally check out of class, they may be signaling a lack of understanding, disinterest in what is taking place, or distraction by a personal challenge that needs addressing. They are telling their teacher that their connection is fraying and that something needs to change.

More data-driven feedback can be found in the daily, unit, and interim assessments that provide teachers with direct evidence of student progress. More informal data sources, including student surveys and exit tickets, may provide insights into students' needs, challenges, interests, and opinions. All sources of data can provide valuable feedback and fodder for reflection and learning.

Reflection and Feedback calls for facilitated time when teachers think about new instructional materials, receive input on how best to use them, examine student work and assessment data, and make changes to instructional practice in response.

This view of reflection and feedback represents three major shifts from the way most professional development occurs:

- **Build trust:** Effective feedback lays the groundwork for teachers to recognize their strengths and weaknesses and commit to ongoing improvement. Teachers' confidence in observers, peers, instructional materials, and the processes they use affects the degree to which they embrace feedback and reflection. Observations by peers and seeing others teach can provide a common, shared experience that supports building trust.
- **A broad look for evidence:** Feedback that leads to growth takes many forms. One type comes from coaches and peers. This type of feedback is bite-sized and grounded in shared definitions and metrics of success. Another type is based in how students engage with instruction. Are they participating, learning the material, and remaining connected to their classmates and the process of learning? Neither type of feedback is used to evaluate performance; rather, both serve to describe progress, diagnose challenges, and create a roadmap for greater success.
- **Observe and reflect together:** In years past, teachers were left to their own devices and provided feedback only during performance evaluations. Curriculum-based professional learning is less hierarchical and more constructive in its feedback processes. At each stage of the learning cycle, teachers reflect individually and jointly on their instruction and the curriculum, both in facilitated conversations and in response to writing prompts. Observations and feedback distinct from formal performance evaluation are conducted by instructional leaders, coaches, and peers.

REFLECTION AND FEEDBACK IN ACTION

Baltimore City Public Schools and the New Teacher Center

Baltimore City Public Schools recently refreshed its blueprint for successful teaching and debuted an updated logo conveying its ideals in June 2020. It's a circle composed of three equal parts: Prepare, Teach, and Perfect & Adjust. Reflection and feedback are on the same footing as planning and instruction.

That visual update goes hand in hand with other big changes: In 2018–19, Baltimore adopted Wit and Wisdom, an English language arts curriculum developed by Great Minds. The district has also partnered with the New Teacher Center to build curriculum-aligned coaching. Both the New Teacher Center and Great Minds are supporting instructional coaches and district leaders to provide teachers with high-impact, job-embedded feedback and opportunities for reflection.

“We believe that to shift educator mindsets and improve student outcomes, professional learning must be rooted in rigorous, curriculum-aligned professional learning that is paired with job-embedded instructional coaching and regular feedback cycles,” said Desmond Blackburn, chief executive officer at the New Teacher Center.

Teachers work in learning teams and receive one-to-one coaching. They create videos of instruction that coincide with cycles of feedback, and they participate in group reflections aimed at helping them to understand the curriculum materials and meet students’ diverse needs. They receive personalized feedback grounded in the materials, advancing their knowledge and skillfulness with it.

Feedback for teachers is aligned to the curriculum and consistent from one observer to the next. “It’s easy to bombard teachers with feedback,” said Janise Lane, executive director of teaching and learning at Baltimore City Public Schools. The district’s feedback protocol gives teachers time to internalize their coach’s feedback – in other words, time to “perfect and adjust.”



Change Management



“For any of us to be open to learning and receiving new ideas, we need to feel known, seen, and valued in the context of our own situation. This is why we have found ‘shoulder-to-shoulder’ learning to be the most effective path to change in practice.”

– Emily Freitag, co-founder and chief executive officer, Instruction Partners

Curriculum implementation is complicated and takes time. Yet the pace of school remains — there’s no postponing fourth-grade reading or seventh-grade math. Meanwhile, district- or school-level changes are meaningful only when they reach every classroom. That means teachers need careful support as they transition away from the instructional style they have developed, practiced, and feel comfortable with while keeping pace with students’ needs.

Applying strong **change management** strategies and practices to curriculum-based professional learning can help teachers make these shifts. Successful change management starts with the knowledge that change isn’t something that just happens — it’s a process, not an event.³³ And it begins at the individual level; it is deeply personal and requires learning.³⁴ Learning something new always precedes change; otherwise, what is the motivation to try something new?³⁵

In the past, schools and districts intent on replacing their curriculum tended to manage the process as a series of tasks culminating in a launch: pick a program, acquire materials, arrange for professional development, and tell staff when to start. This type of top-down mandate rarely survives for long. Without securing teachers’ buy-in, the materials may change, but daily instruction won’t. And without supporting teachers to gain new perspectives

and instructional skills, even the most passionate efforts are likely to fall short.

Consider how we now understand students learn best. We don’t expect students to enthusiastically master polynomial equations or sonnets after hearing a lecture and recreating what they were told. Instead, teachers provide multiple opportunities for students to construct their understanding of a new topic over time. Students interact with knowledge and ideas with growing levels of complexity. They demonstrate new knowledge and skills, reflect on what they don’t yet know, and continue to deepen their learning.

Curriculum-based professional learning is rooted in a vision of teachers as learners. Much like their students, teachers benefit from multiple opportunities to explore new instructional materials. But they also are under constant pressure to ensure their students succeed, even as they replace trusted practices and familiar materials. The stages of change and cycles of learning suggest that ongoing support provides a necessary foundation for lasting improvement.

Effective curriculum-based professional learning is grounded in a plan that supports both individual and organizational change. Learning experiences are designed and scheduled. Timelines are set and responsibilities clarified. And while careful attention is paid to detail, there is also a recognition that schools are complex organizations. At times, things may not go as smoothly as planned — which means that district leaders, principals, coaches, and professional learning designers and facilitators must draw from research-based tools and resources to support individuals and institutions to work through these challenges.

Change Management addresses teachers’ individual concerns and group challenges when implementing new instructional materials, including explicit opportunities to discuss and troubleshoot issues.

Putting Change Management to Work

This view of change management represents three major shifts from the way most professional development occurs:

- **A process, not an event:** Change isn't the difference between before and after — rather, it's an ongoing disruption of thinking and doing. It requires adults to make and remake their knowledge, actions, and beliefs, which requires attention and energy over time. Important change happens over three to five years, not during a single launch period.³⁶
- **Support people:** Change is disruptive. It requires adults to let go of old ways of doing things and recasts their experience and expertise as less relevant or in need of an update. Supporting curricular change means guiding teachers to come to grips with uncertainty. Firsthand experience seeing that new curriculum materials benefit students can focus teachers on the benefits of the new rather than the loss of the old.
- **Stay the course:** In the midst of change, adults often look to restore their equilibrium, including by backsliding into old ways of thinking and doing. Ongoing reflection and feedback can help teachers remain connected to the process of change. These experiences are rooted in instructional coaching and facilitated curriculum-based professional learning experiences that challenge teachers to review evidence on student learning and reexamine their beliefs.

“Change is not easy, and it happens through intentional learning — for educators and students alike. Adopting new curriculum materials and making the instructional shifts needed to accelerate learning and meet new standards may not always be comfortable. But with the right mindsets, mission, and systemic support, all teachers and students can make the leap.”

— Denise Glyn Borders, president and chief executive officer, Learning Forward



The Concerns-Based Adoption Model

The Concerns-Based Adoption Model provides a framework and tools for understanding the change process and providing appropriate support to individuals experiencing it. It includes three main components: Stages of Concern About the Innovation,³⁷ Levels of Use of the Innovation,³⁸ and Innovations Configurations.³⁹

In applying this framework to curriculum reform and professional learning, we look to the seven Stages of Concern to chart teachers' shifting reactions and feelings and how to respond to them. The eight Levels of Use characterize typical behaviors as teachers' competence improves over time. Innovations Configurations represent the ideal vision of the implementation of new curriculum, with a richly detailed set of actions teachers will demonstrate.

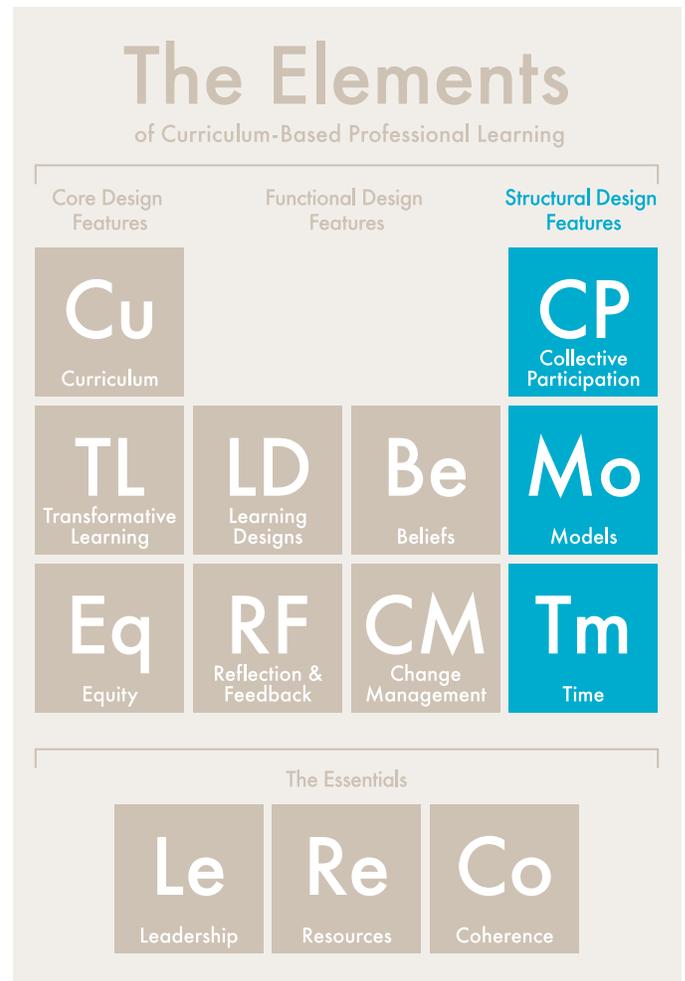
| IN THESE STAGES OF CONCERN... | AND THESE LEVELS OF USE... | TEACHERS ARE... | AND WOULD BENEFIT FROM... |
|--|--|--|---|
| Awareness Information Personal | Nonuse Orientation Preparation | Moving from early awareness to wondering how a change will affect their individual work | A strong launch event or anchoring experience to introduce the instructional materials in their school's context, supported by efforts to establish a safe risk-taking environment for changing instruction |
| Management Consequence Collaboration | Mechanical Use Routine Refinement Integration | Working with instructional leaders and colleagues to understand the instructional materials and shift their practices efficiently so that their instruction has a positive impact on students and is coherent with instruction elsewhere in the school | Regular time and space to collaborate with colleagues in professional learning communities, feedback from expert coaches using the Innovations Configurations , and opportunities to reflect on instruction and review data and student work for evidence of success |
| Refocusing | Renewal | Participating in big-picture thinking about the curriculum and effectiveness of instruction throughout the school, including possible improvements and alternatives | Reflection with colleagues and coaches, data-driven conversations with leaders, and renewed study of academic standards |



STRUCTURAL DESIGN FEATURES

Building a strong and stable curriculum-based professional learning program takes more than well-intended commitments to collaboration or achievement. There are practical considerations as well. For instance, how does the process of curriculum implementation intersect with teachers' daily work? Are teachers already working with the curriculum materials, or are they encountering them for the first time? Do they have opportunities to study the curriculum and practice new instructional strategies with colleagues teaching the same grade or subject?

Structural design features include three Elements that describe the parameters and setting for curriculum-based professional learning: **collective participation** structures that enable teachers to work together to achieve common goals; **models** of effective professional learning that evolve as teachers' needs change; and **time**, the most basic precondition for growth.



Collective Participation



“Teaching is often very isolated. Teachers have a room full of kids, but they don’t often have a lot of time to be with their peers and colleagues to dig into teaching and push each other’s thinking in complex ways. I think curriculum-based professional learning is effective not just because they have a curriculum, but because they have colleagues that they can talk with and push each other’s ideas. The facilitator’s role is to create a space where they can learn from each other.”

— Max Ray-Riek, director of 6–12 curriculum and professional learning, Illustrative Mathematics

Too often, teachers go it alone. Traditionally, they work separately from their colleagues, with limited opportunities for collaboration once the classroom door is closed. This isolates teachers from one another and prevents their students from benefiting from more than one adult’s expertise. In recent years, unions and districts have worked to address this issue by adding shared planning periods into the school day, but it’s not always clear what teachers are supposed to do with them.

Bringing teachers together in small, collaborative groups is a powerful way to support curriculum-based professional learning.⁴⁰ Through **collective participation**, teachers are grouped by grade or subject and have ongoing opportunities to study, practice, and reflect on using new instructional materials. This approach contrasts with typical training models, in which

individual teachers from many schools attend a workshop off-site. They intend to share what they learned with colleagues but, wrapped up in their day-to-day responsibilities, rarely follow through.

When collective participation is prioritized, teachers from the same grade or department plan, practice, and reflect on lessons together. In these professional learning communities, they examine data, including examples of student work; set goals; and compare their experiences using the new instructional materials in the classroom. Over time, they build a body of knowledge that enables them to drive improvement across a school or district. Research supports this approach, with many studies suggesting that teacher collaboration is essential to professional learning that influences classroom practice and improves student outcomes.⁴¹

When teachers focus on implementing high-quality instructional materials, their work is based on a shared vision and purpose. When they plan, rehearse, and reflect with their colleagues, they hear the diverse perspectives of others grappling with similar challenges. And when led by an expert instructional coach or experienced teacher leader, group sessions can mirror the activities teachers are planning for students, promoting empathy, trust, and a shared sense of responsibility and optimism for the future.⁴² Teachers collaborate with their colleagues to build new knowledge and skills, working in much the same way students will.

These cohorts become high-functioning teams with deep expertise in the instructional materials they use, with colleagues providing valuable information, inspiration, and support. Curriculum is at the center of the efforts, and collaboration amplifies its impact.

Collective Participation builds on collaboration among teachers in the same school, department, or grade using the same instructional materials.

Putting Collective Participation to Work

This view of collective participation represents three major shifts from the way most professional development occurs:

- **More focus:** Save it for email — avoid agenda-driven planning periods or department meetings that focus on housekeeping. Establish curriculum study, practice, and reflection as the main subject of teacher and leader meetings, not an optional discussion item at the end.
- **More purposeful:** Assemble professional learning community groups by grade level and subject and establish curriculum implementation as the core agenda for their time together, reviewing student data, including work samples; planning and rehearsing lessons; or troubleshooting shared challenges.
- **More guidance:** Ensure that well-prepared facilitators are available for each professional learning community. Identify and support teacher leaders who can grow into these roles in future years.



COLLECTIVE PARTICIPATION IN ACTION

Sunnyside Unified School District and Illustrative Mathematics

Professional learning communities have played a major role at Sunnyside Unified School District in Tucson, Arizona, which has struggled with low student achievement in math. Nearly one in five students are English language learners. Some 80 percent come from low-income families, 85 percent are Hispanic, and 4 percent are Native American, as the district straddles First Nations tribal lands.

Sunnyside adopted a problem-based math curriculum in recent years, starting in elementary schools and then expanding to middle and high schools. Illustrative Mathematics is built on student-led activities and relies on teachers to guide student discourse rather than lecture and lead instruction. Rather than focusing on direct instruction and coaching students to practice and get the right answer, Illustrative Mathematics promotes mathematical reasoning through activities and discussion prompts, including by presenting students with problems they may not know how to solve.

“There’s tons of work around setting up structures for students to successfully collaborate, to know students and what they do and don’t understand,” said Max Ray-Riek, director of 6–12 professional learning at Illustrative Mathematics. “To understand the tasks at a really deep level, so you know what the right conversations to be had are, and then being able to sequence and facilitate and connect a discussion that’s based on students’ ideas – it’s really demanding.”

Schedules for Sunnyside’s math teachers included 90 minutes each month to meet in grade-band professional learning communities, but the district only had one math and science coordinator available to lead them. With grant support, Sunnyside enlisted Illustrative Mathematics to provide professional learning materials and instructional coaching with two goals: enhance teachers’ understanding of the curriculum materials and build capacity to support ongoing professional learning.

During the 2019–20 school year, various grade- and school-based professional learning communities met regularly in person and via videoconference to dig into the curriculum materials and identify opportunities to improve instruction. The meetings followed the same instructional routine as an Illustrative Mathematics lesson and focused on different elements.

The impact of the facilitation and focus was clear. For example, when a sixth-grade cohort was discussing how to use the material’s Check Your Readiness pre-unit assessment, teachers discovered a common problem: students were consistently forgetting how to apply the distributive property. They compared notes from classroom discussions and found that the confusion stemmed from variables, not the property itself. Teachers then made sure to share plain-language definitions of variables and give students opportunities to discuss and use them in class, getting to the root of the misconception.

These sorts of experiences helped focus teachers on the curriculum materials and transform their professional learning community meetings from general advice sessions to detailed discussions. Often, meetings were used to determine which aspects of a lesson could be compressed or skipped without compromising student learning – critical to keeping unpredictable discussion-driven classes on track.

“Everything that’s in our curriculum materials is so specific, and it’s very necessary. And I didn’t realize that in my first year,” said Melody Salcido, a sixth-grade teacher at Mission Manor Elementary School. “During our professional learning communities, we’ve taken each piece apart. We looked at preassessment in depth, strategies for English language learners, strategies for students with special needs, the learning goals. When you look at everything so closely, it actually makes you realize how important all of those pieces are. That way, you can successfully implement a curriculum. I don’t think I knew how to do that at first.”



“The impact of the LEAP model can be traced to three major factors: high-quality instructional materials and curriculum-based professional learning, a broad commitment and the structures in place to commit time and energy to professional learning, and a culture of collaboration and social accountability for improvement.”

– Chong-Hao Fu, chief executive officer, Leading Educators

While professional development is often one-size-fits-all — think mandatory school-wide seminars or universally assigned courses — the format and content of curriculum-based professional learning evolve over time. They are necessarily informed by the needs and goals of individual teachers as they progress through different stages of learning.

Curriculum-based professional learning includes multiple **models** of learning and provides teachers with different types of learning experiences.⁴³ These run the gamut from early exposure to expert refinement — individual investigations, coaching, expert support, professional learning communities, study groups, institutes, workshops, and classroom observations.

This approach to professional learning respects teachers as individuals with different needs and levels of experience. It involves three stages of curriculum implementation, with learning experiences tailored to teachers based on their focus area, such as their grade or subject, and how long they have been working with the curriculum materials. Just as students need different types of lessons at different moments of study, teachers benefit from professional learning that matches their levels of knowledge and experience.

Curriculum-based professional learning often starts with a curriculum’s launch: selecting and introducing high-quality instructional materials in an intensive summer institute or workshop, for example. In this *initial use stage* of learning, an immersion model is essential. Rather than simply discussing the curriculum, teachers immerse themselves in lessons just as students would, participate in reflective conversations, and plan for the lessons’ use in their classrooms. Classroom observations, videos of the instructional materials implemented in other schools, and insights from other users can give teachers a sense of what to anticipate for their students.

Putting Models to Work

Once teachers move into the day-to-day use of the curriculum, they enter the *ongoing support stage*. Seminars and presentations are less valuable at this stage; instead, facilitated professional learning communities can build curricular expertise and a collegial culture.⁴⁴ Teachers can examine student work and data together, visit one another's classrooms in learning walks, and reflect on their experiences. As they incorporate new materials into their classrooms, mentoring and coaching can provide just-in-time feedback to strengthen instructional practice.⁴⁵

In the *building capacity stage*, leaders take the long view at the systems level. They anticipate turnover; develop talent pipelines for coaching, principal, and teacher leader roles; and establish networks of experienced educators to ensure professional learning and support continue. Models such as study groups help teachers refine and adapt instructional materials, and leadership academies and advanced certification programs build a leadership pipeline.

No single experience can achieve every target outcome in every phase. To put teachers in cohorts without first engaging them in an immersive learning experience, for example, would be to bypass an important stage of learning that informs the implementation of future units and lessons. Similarly, minimal benefits can be gained from taking a learning walk through a classroom before a teacher has developed an understanding of how lessons should proceed or worked with an expert coach to define an improvement goal. Choosing wisely among models can accelerate teacher development and student success.

Models provide appropriate adult learning strategies, including coaching, expert support, study groups, professional learning communities, institutes, workshops, and learning walks to achieve intended outcomes.

This approach to models represents three major shifts from the way most professional development occurs:

- **A tailored approach:** Professional learning is not one-size-fits-all. It should include a collection of research-based learning approaches that instructional leaders thoughtfully select based on the needs of individual teachers and professional learning communities at different stages of implementation.
- **Consistent effort:** Summer institutes are the beginning, not the end. Curriculum-based professional learning continues throughout the school year and takes different forms, including professional learning communities and instructional coaching.
- **Looking forward:** Curriculum-based professional learning must be ongoing and sustainable, which means it cannot be led solely by outside experts. Schools and districts must plan for the future by building in-house expertise and leadership pipelines.



MODELS AND TIME IN ACTION

District of Columbia Public Schools and Leading Educators

Every week, teachers meet with their colleagues for in-depth curriculum study, practice, and planning at District of Columbia Public Schools. Each team is carefully composed by subject and grade band. Facilitated by a well-prepared instructional leader, teachers review student data and progress, rehearse lessons, and reflect on recent classes as they plan ahead.

These sessions are part of the LEAP program, short for Learning Together to Advance our Practice, which D.C. schools launched with Leading Educators in 2016. LEAP is used in all 116 of the district's public schools, where student proficiency on annual tests has increased by 15 percent in reading and 11.5 percent in math in four years.

"Prior to LEAP, in my experience, teachers who received in-house coaching were teachers who were struggling. And there was this idea that teachers who were really strong or who were really doing well in the classroom didn't need the support," said Libby Sanchez, a teacher leader at Marie Reed Elementary School. "So, one thing I appreciate now is ... there's this recognition that all teachers deserve an opportunity to grow, and they need and deserve an opportunity to get better in their practice."

LEAP's laser focus on high-quality instructional materials, such as those from the Eureka Math curriculum the district has adopted, sets it apart from other teacher development efforts. It is school-based and specific to the content that teachers and their students are grappling with at a particular moment. Teaching teams follow a sequence of adult learning content that lines up with the classroom curriculum.

Over a three-week cycle, teachers and coaches meet in professional learning communities, where they review lessons in detail and select a relevant instructional skill to focus on. Teachers then plan a lesson from the curriculum materials that draws on that skill and practice it with their students. They reflect with their colleagues and experience frequent observations — more than 30 each school year — to get the feedback they need to refine and improve their instruction. Ongoing conversations stress the importance of building students' academic skills and sophistication for success now and later.



The program's keystone is its 600 LEAP leaders, who serve as instructional leaders and coaches at their schools as part of the district's Teacher Leadership Initiative. About 600 teacher leaders participated in a two-week summer institute at the program's launch. For seven days each school year, they attend district-wide professional learning sessions to analyze implementation data, refine their instructional leadership and coaching skills, and address challenges. These teacher leaders guide well-planned learning activities that shift throughout the year, responding to different needs and building different capacities as teachers learn and grow.

According to Chong-Hao Fu, chief executive officer at Leading Educators, "The impact of this model can be traced to three major factors: high-quality instructional materials and curriculum-based professional learning, a broad commitment and the structures in place to commit time and energy to professional learning, and a culture of collaboration and social accountability for improvement."

"We know that quality matters dramatically in terms of whether teacher learning will yield positive cultural benefits as well as increased student learning," he said. "DCPS adopted high-quality instructional materials, and almost all of the work was curriculum-specific, which meant that teacher learning was anchored in what student learning would be. And that also gave the opportunity for teachers to understand the design principles and learning science behind a strong curriculum."

Time



“We are thinking differently about our professional development calendar so we can free up time and space, so we’re not pulling people out of classrooms with students. There is a study out there that says a sweet spot for our return on investment for professional learning is about 48–50 hours of job-embedded learning.⁴⁶ So we carved out eight days of curriculum-based professional learning that is direct-to-teacher next year, and that’s in addition to other vehicles, like communities of practice.”

— Brian Kingsley, chief academic officer, Charlotte-Mecklenburg Schools

Keeping pace with expectations for student learning is an ongoing challenge, and there are only so many hours and days in the school year. It’s no wonder teachers routinely rank time at the top of the list of things that would improve their satisfaction and effectiveness on the job.⁴⁷

Professional learning days and shared planning periods are already part of many teachers’ schedules. But school calendars often are established by state regulations or employment contracts long before the school year begins. Such lockstep schedules give teachers a starting point for professional learning, but they are not sufficient.

The wise use of **time** — with enough provided for curriculum-based professional learning for teachers at key moments — is essential to successful curriculum implementation. Time goes hand in hand with models to enable an overall flexible approach that responds to learners’ changing needs.

The right amount of time will change from teacher to teacher and year to year, depending on individuals’ needs and familiarity with their instructional materials. When launching new instructional materials, teachers benefit from immersive experiences to build foundational knowledge and skills, such as a two-week summer institute. There, they can study the materials, experience lessons as students while being taught by a coach or teacher leader, and become fully immersed in the tools and approaches they’ll need to start the year strong.

Throughout the school year, teachers ideally deepen their knowledge and refine their instruction by participating in one- or two-day learning sessions before each new unit. They have professional learning communities with others teaching the same grade or subject, with common planning time. Working together, teachers can develop a collective responsibility for their students and ensure that materials and instruction are aligned with students’ interests, build on their strengths, and support growth where skills lag grade-level expectations. Professional learning communities can review and rehearse upcoming lessons, examine student work, monitor progress, and identify and troubleshoot challenges.

These professional learning experiences require more time on task than is customary for schools and districts. However, by investing this time up-front, teachers can develop a deep understanding of the organization and purpose of the instructional materials — and the mindset that the curriculum will be effective. And by setting aside time at key points each week throughout the school year, school leaders can help teachers stay the course and continue to learn and grow within the curriculum.

Without these investments, schools are far less likely to realize the goals that inspired them to adopt the new instructional materials in the first place.

Creative district and school leaders can find pockets of time when they prioritize professional learning. Schools can occasionally open late or close early, giving teachers time to meet. Class schedules can shift to blocks, with student electives timed to release grade-level teachers during the same period. Floating substitute teachers can step in so that teacher leaders can participate in learning or observe a colleague.

These may sound like extreme changes, but such interventions need not last forever. Development needs shift each year, and even each month. Ongoing learning requires flexibility, not a particular way of allocating or spending teachers' time.

We can look to high-performing systems around the world to see the importance of devoting time to teacher learning. In some other countries, teachers spend 20 to 40 percent of each workday working with colleagues and individually to advance school and team goals.⁴⁸ Peer networks are predominantly used to support the implementation of instructional programs, including new curriculum materials. Learning time for educators often extends into after-school sessions, summer learning experiences, and times during the workday when students are not present.

Time enables teachers to learn, practice, implement, and reflect on the use of new instructional materials during the summer and throughout the school year.

Putting Time to Work

This approach to time use represents three major shifts from the way most professional development occurs:

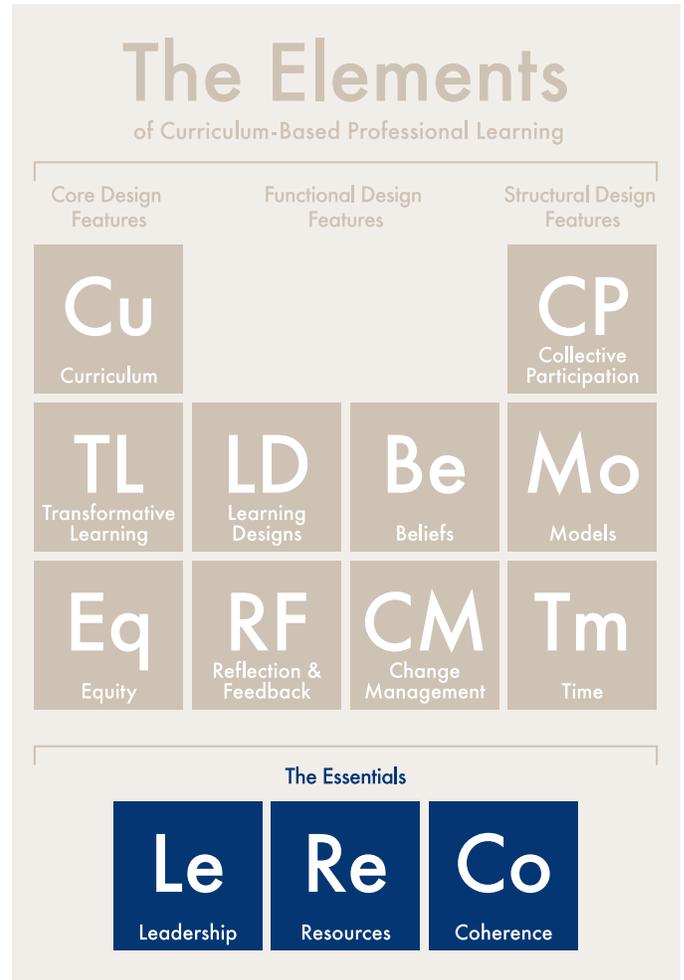
- **Make a commitment:** Effective implementation of high-quality instructional materials must be a priority and drive decision-making. Within a teacher's schedule, time to study, practice, and plan is essential to effective teaching, not merely nice to have.
- **Get creative:** District, school, and teacher leaders can find time for professional learning in unexpected ways, such as by adjusting daily schedules, introducing late starts or early dismissals, or hiring floating substitutes.
- **Be intentional:** It's not about time itself but how that time is used. In all professional learning sessions, teachers must engage with their instructional materials in a purposeful way, driven by goals in collaboration with colleagues and guided by a well-prepared instructional coach or facilitator.



THE ESSENTIALS

This section describes the three **Essentials** — the necessary conditions at the system level for curriculum-based professional learning. These enabling conditions define expectations of system leaders and principals for supporting teachers. Each helps to build and sustain learning organizations, where ongoing investments in high-quality instructional materials and support for their implementation contribute to a powerful vision for instruction and success for all students.

In successful learning systems, teachers and schools work under strong **leadership**, with leaders who model and promote active learning for both students and adults. These leaders allocate adequate **resources** for curriculum implementation, including professional learning, making tough decisions about time, funding, assessments, and expert support. Such systems are characterized by **coherence**, with curriculum-based professional learning that both supports and is supported by other initiatives.



Leadership



“I see solutions that empower teachers and propel kids. I see the power of elevated expectations, structural strategy, collaboration, and the immeasurable value of leveraging the strengths, talents, and voices of teachers and leaders. We are propelling equity, equipping teachers with high-quality instructional materials, and enabling them to teach rather than gather and create.”

– Robin McClellan, supervisor of elementary education, Sullivan County Schools

We often associate **leadership** with a decisive nature and a singular approach to accountability. But leadership looks different when schools operate as authentic learning communities. Leaders model and guide inquiry rather than simply transmitting expertise. They share responsibility and decision-making to promote a common purpose and collective responsibility for student success.⁴⁹

In such schools, adults actively question, reflect, discuss, and build knowledge together.⁵⁰ Leaders visibly engage in learning alongside staff and colleagues. They engage teachers and instructional leaders in ongoing conversations to deepen their understanding of curriculum and improve instruction.

Leadership transcends titles and happens in teams, with individuals who have different skills and expertise working toward shared goals for student success. Decision-making responsibilities are entrusted to teachers and teacher leaders, whose work is anchored in a strong culture of inquiry, knowledge construction, reflection, and improvement.⁵¹

Leadership at a learning organization resembles teaching in an inquiry-based classroom. Like their students, teachers in such schools learn from their experiences, construct new understandings, and build on what they know about curriculum and instruction. Similarly, school and instructional leaders don't pretend to have all of the answers; instead, they ask questions, actively listen, and test out new ideas all the time. They model vulnerability and resilience, which promotes trust and encourages teachers to take risks, test assumptions, and break down old ways of thinking and doing.

Leadership commits district, school, and teacher leaders to a shared vision for learning and instruction that applies to both students and adults, creates a culture of respect, and supports necessary risk-taking for curriculum implementation.

Putting Leadership to Work

This view of leadership rests on three big ideas:

- **Leaders are learners:** Leaders don't have all of the answers; rather, they are continuously learning alongside their colleagues and teachers. They model learning activities like listening, questioning, and reflecting with colleagues, and their decisions prioritize support for teacher learning.
- **Knowledge is constructed:** The process of learning is ongoing, as leaders and other adults build institutional and individual knowledge together. Leaders facilitate and listen as others share past and current practices. They build trusting relationships that support honest, forward-looking reflection. These conversations create shared meanings and new habits and beliefs.
- **A shared vision:** Leadership is rooted in shared ideas and understanding and transcends individual titles or roles. Through reflection, listening, study, and collaborative goal setting, teachers, coaches, and principals build a vision that guides professional learning and daily decisions.

LEADERSHIP IN ACTION

Sullivan County Schools and TNTP

In Sullivan County Schools, a rural district in East Tennessee along the Appalachian Trail, nearly four in 10 students were considered at risk in reading just a few years ago. Those students couldn't complete grade-level tasks like analyzing a text, responding to a writing prompt, or answering questions using textual information. The district joined the LIFT network, short for Leading Innovation for Tennessee, to work with nonprofits TNTP and Tennessee SCORE to improve its reading curriculum and instruction.

It sounds like a top-down initiative run by outsiders – the sort that often falls short of expectations if teachers don't buy into it or engage in curriculum-based professional learning. But Sullivan County had built a corps of two dozen teacher leaders it called “game-changers,” and it turned to those teachers to help lead curriculum change.

Those teachers, along with district and school leaders, met to review and select instructional materials that were rigorous and relevant to students. They also questioned their underlying beliefs and assumptions about how students learn to read while reviewing reading research and how literacy was taught in Sullivan County.

“My epiphany came in 2016 like a tornado rather than a gentle breeze when I was taught – through our collaboration with SCORE and TNTP – that we must build students' background knowledge while explicitly teaching foundational skills,” said Robin McClellan, the district's supervisor of elementary education. “I realized, with great dismay, that our work didn't align with the research on how kids learn to read.”

Sullivan County selected the Core Knowledge Language Arts curriculum for K-5, a content-rich curriculum with rigorous learning outcomes for student reading and writing. Teacher leaders piloted its implementation in the 2016-17 school year, and then leaders and teachers set out to study and implement the curriculum together with support from SCORE and TNTP. District and school leaders conducted instructional walk-throughs and provided brief coaching sessions. They prioritized responding to teachers' feedback about the curriculum materials, pointing back to research, and they publicly celebrated teachers' work.

At the end of the pilot, the game-changers signaled their support for the Core Knowledge curriculum, which was rolled out in every school the following year. These teachers took on a new leading role: supporting and mentoring other educators to build knowledge and expertise. Meanwhile, district leaders continue to regularly collaborate with teachers to share their experiences during Board of Education meetings, and they highlight shared leadership in communications with parents and the media. And student outcomes are improving: the portion of students considered at risk for reading failure declined from 38 percent in fall 2018 to 28 percent in spring 2019.





“When materials aren’t open-source, it’s really hard to build an integrated system because we don’t have permissions — that’s the power of open educational resources. The curriculum can play its true role as the center of the instructional vision, and everything can reinforce it.”

— Rebecca Kockler, former assistant superintendent of academic content, Louisiana Department of Education⁵²

Curriculum-based professional learning takes commitment and resolve. Because change is an ongoing process, demands on time and school budgets are ongoing as well. Leaders who prioritize curriculum-based professional learning continually find the **resources** needed to support it. They also have a clear vision of curriculum-based professional learning that informs their decisions about how to allocate time, money, and professional effort. When leaders make decisions with this vision and resources in mind, teachers are supported to study and use high-quality curriculum and instructional materials, participate in professional learning sessions with colleagues, and experience skillful coaching and facilitation.

While resource considerations are not solely financial, money does matter. Engaging in curriculum-based professional learning requires investments in standards-aligned instructional materials and outside technical assistance to support their effective use. But it doesn’t necessarily require a spending spree. Schools and districts can redirect current spending on textbooks and training sessions, for example, to purchase high-quality educative instructional materials or engage professional learning organizations to support curriculum implementation. States and systems can purchase

standards-aligned curriculum materials, which on their own can accelerate student learning at low or no cost.⁵³ Alternatively, leaders can prioritize investments in curriculum-based professional learning over other budget categories. These can be tough choices for resource-constrained schools, but allocating resources to support curriculum-based professional learning can enable them to overcome inequities and drive results for teachers and students.⁵⁴

In some cases, high-quality instructional materials are freely available online through Creative Commons licenses. Schools that adopt these types of materials can direct resources toward implementing them. Open educational resources, which are released under an intellectual property license that permits their free use, provide an alternative to commercially published proprietary curriculum materials. Some are digitally available in an editable format, enabling teachers to adapt them to meet their students’ needs. While curriculum materials of this kind are freely available, it’s important to remember that they do have associated costs — most districts still need printed materials, and teachers still need supplies like math manipulatives, trade books, and science equipment. They also need access to curricular expertise and time for curriculum-based professional learning.

Time is also a critical resource. Implementing new curriculum materials is an ongoing process; reserving extra days at the beginning or end of the school year to focus on implementation will not cut it. Instead, leaders might adopt a block schedule or other mechanism to establish weekly planning periods, enabling professional learning communities to meet during the school day. In setting expectations for those meetings, leaders might trim teams’ agendas and refocus their time on curriculum. Or in establishing school-year schedules, leaders might expand the number of professional learning days or build in after-school learning time for teachers.



Leaders of professional learning are simultaneously visionaries and realists. They recognize the connection between resources and effective curriculum-based professional learning, so they both make efficient use of the resources they have and aggressively seek out additional resources to improve teaching and learning.⁵⁵

In all these decisions, leaders are focused on building expertise in two main ways: (1) bringing in outside curriculum and professional learning facilitators to support implementation and (2) seeding homegrown expertise by identifying and supporting teacher leaders, instructional coaches, and school leaders. Both external and in-house experts can serve as champions and ambassadors for the curriculum, bringing new teachers up to speed and supporting veteran teachers as they refine and enhance their instruction.

Resources ensure that schools have adequate time and funding, high-quality standards-aligned instructional materials and assessments, access to experts, and the professional learning materials needed for sustainable implementation.

Putting Resources to Work

This view of resources rests on three big ideas:

- **Honest accounting:** Curriculum-based professional learning takes a considerable amount of time, money, and effort. For professional learning to occur, those essential resources must be oriented toward a shared vision of curriculum and instructional improvement. Leaders must be clear with themselves and their colleagues about the extent of the resources required and be ready to make tough decisions about what to prioritize and what to put on the back burner. They also must clearly document the returns on these investments in terms of student progress.
- **Ongoing commitment:** The resources needed to support curriculum-based professional learning will fluctuate over time. Different resources are needed during curriculum launch and ongoing implementation, but the need for resources will never disappear. New teachers will need in-depth professional learning, and veteran staff members will benefit from booster shots of professional learning in addition to frequent opportunities for practice, data review, and refinement. These investments should be integrated and ongoing.
- **Audit for expertise:** Investments of time and money are ultimately investments in expertise, whether homegrown or external. Districts should take stock of available expertise in curriculum-based professional learning over time. Which teacher leaders are prepared to facilitate learning experiences? What resources are needed to build and maintain connections to external experts, such as curriculum developers, professional learning designers and facilitators, and researchers at local colleges and universities? Maintaining these talent pipelines and external relationships provides another important resource.

RESOURCES IN ACTION

Not All Resources Are Created Equal

It is just as easy to adopt a curriculum that is standards-aligned as one that is not – and curriculum matters. Fortunately, there are organizations working to increase the accessibility and identification of high-quality instructional materials and standards-aligned curriculum.

EdReports publishes free, comprehensive reviews of instructional materials on its website, with the goal of serving as a sort of Consumer Reports of instructional materials. It investigates materials prepared by traditional publishing houses as well as open-source instructional materials. In a 2019 review of materials regularly used in U.S. classrooms, EdReports found that just 16 percent of ELA materials and 26 percent of math materials were standards-aligned.⁵⁶ Yet high-quality instructional materials are broadly available – a 2018 EdReports review found that 49 percent of published ELA materials and 29 percent of math materials were aligned to college- and career-ready academic standards.⁵⁷

Open educational resources have significantly expanded access to a variety of instructional materials and have been met with widespread demand. Instructional leaders and teachers from preschool through college can select relevant, standards-aligned materials to meet their students' needs, updating curriculum and instruction throughout a school year. Using open-source materials allows districts to invest more in curriculum-based professional learning and instruction and less in figuring out how to purchase or otherwise gain access to the necessary materials. It is important to note, though, that districts must still carefully vet open-source materials; just because something is freely available doesn't necessarily mean it is better.

One of the most broadly adopted open educational resources was launched by the New York State Department of Education. The department used federal Race to the Top funds to create the EngageNY K–12 math and ELA curriculum, which includes individual lessons, teacher guides, and full instructional units with aligned professional learning resources. The math materials, also known as Eureka Math, align with the Common Core State Standards and have been downloaded more than 13 million times and by teachers in all 50 states.⁵⁸

Louisiana took a similar path in developing its K–12 English Language Arts Guidebook Units in partnership with LearnZillion. When the state couldn't find instructional materials to match new academic standards, leaders tapped a network of teacher leaders to develop new ones. ELA Guidebook units and related professional learning resources are freely available under a Creative Commons license, and state education leaders report that most districts have opted to use them.⁵⁹ Use of the ELA Guidebook units powers a focused, integrated vision for rigorous instruction and professional learning rooted in curriculum.

New open-source science materials also have been developed in response to the widespread adoption of new science standards. Twenty states have adopted the Next Generation Science Standards (NGSS), and another 24 have adopted related new science standards. EdReports has begun reviewing widely used science instructional materials, and its initial review of middle school materials indicated that just one-sixth are aligned to new academic standards.⁶⁰ In response, initiatives like OpenSciEd – a collaboration between 10 states, curriculum developers, and learning scientists supported by foundations (including Carnegie Corporation of New York, which launched the initiative) – are working to develop and field test open-source K–12 science instructional materials and professional learning resources aligned with the NGSS.

In decades past, instructional materials were an all-in purchase at the school or district level. Boxes of textbooks and teachers' guides would crowd the main office, and teachers would gather in the auditorium for an introductory seminar. Students and teachers would work with those textbooks until the next adoption cycle. Open educational resources – and more specific definitions of high-quality instructional materials and curriculum-based professional learning – have shifted the priorities and the work.



“When district leadership teams spend time thinking through and selecting standards-aligned instructional materials, strategic assessments, and meaningful professional learning, they no longer have to worry about what’s happening across classrooms and schools. When they put the whole picture together, teachers and students have what they need to thrive.”

— Mora Segal, chief executive officer, Achievement Network

Teachers are motivated by boundless hopes for their students, but they regularly face a tough reality: you can’t do it all in a day. Nimble instruction focuses students’ time and energy where they matter most and engages learners at a sustainable level of effort. It pushes students to learn and grow but avoids cognitive overload.

Well-managed schools and systems operate on the same principle. There is no end to the running project list that an energetic leader or teacher has in her head, and she runs the constant risk of initiative overload. Successful schools operate with **coherence**, focusing efforts on a common purpose and selecting among competing priorities based on a central, driving mission. Their teachers collaborate as they strive toward excellence. They and their students work hard and maintain focus on what matters most.

Coherence thrives in systems where leaders embrace a shared vision, one in which rigorous, high-quality instructional materials and professional learning are central. In these systems, a new curriculum or instructional practice doesn’t come out of left field. It builds on what teachers are already working to achieve and clearly relates to an overall academic strategy. Teachers should not have to do cognitive backflips to figure out how new instructional materials will fit into their classes.

Coherence also helps teachers and leaders choose how to use their time and energy. When schools operate with coherence, instructional and bureaucratic practices that don’t align with their mission can be discontinued. Mixed messages and cross purposes can be identified and brought into agreement. Coherence enables teachers and leaders to shift their efforts toward collaboration and professional learning experiences grounded in rigorous curriculum materials. It gives focus to cycles of learning and continuous improvement and shared accountability for progress.

Coherence gets at a fundamental truth about schools as learning organizations. Many organizations achieve alignment in policies and use instruction and assessments that make sense within their particular system.⁶¹ But schools are most successful when they achieve a deep understanding of high-quality instructional materials and learning sequences for both students and adults. Coherent curriculum builds on ideas over time. Teachers create coherence when they use instructional materials to help students make connections between ideas, build on their prior learning, and apply what they have learned to solve problems.⁶² Schools achieve coherence when they minimize distractions and promote the habits of mind that power inquiry among students, teachers, and leaders.⁶³

Coherence aligns system and school policies, priorities, practices, and curriculum to a shared vision of learning and teaching.

Putting Coherence to Work

This view of coherence rests on three big ideas:

- **Share the vision:** Coherent schools have a compelling vision and mission that are evident in leaders' decisions, communications, and actions and create a common language for all school professionals. Explicit connections between a school's vision, language, and actions can sharpen decision-making and illustrate the coherence that knits a learning organization together.
- **Ask why and how:** Successful schools prioritize strategies that promote curriculum-based professional learning and put them into action. In choosing among competing priorities, leaders select those that complement existing efforts and promote further success. They take concrete steps toward coherence rather than adopting policies that are only abstractly connected, working to clarify focus, cultivate collaborative cultures, secure accountability, and deepen learning.⁶⁴
- **Go step by step:** Coherent curriculum-based professional learning helps teachers understand the structures underlying high-quality instructional materials. It guides teachers along a path to mastery, building their expertise through successive experiences and opportunities to reflect. By contrast, less coherent schools take a scattershot approach, solving problems as they occur. While professional learning can be responsive to teachers' evolving needs, its general trajectory should conform to a learning progression grounded in the curriculum.

COHERENCE IN ACTION *Caldwell Parish School District and Achievement Network*

Not too long ago, teachers in Caldwell Parish School District in Louisiana were giving a lot of lengthy tests. District policy required students to have two dozen test grades to track their progress over the year. While such data can be helpful, the tests took up a lot of class time — up to one full day each week. Students in the small, predominantly low-income district were struggling to meet grade-level standards in English, and teachers were constantly busy with planning, administering, and grading tests.

The district needed to refocus everyone's time on more rigorous teaching and learning to help students meet grade-level standards for reading and writing. So district leaders partnered with Achievement Network, and together, they tackled the tests. Achievement Network provided professional learning on what makes a quality standards-aligned assessment so that teachers could identify useful assessments that were already part of the ELA Guidebook units they were using. Achievement Network also worked with school leaders to understand how teachers could meet the district's grading requirements without introducing new assessments from outside the curriculum. As a result of these efforts, testing decreased, and classes gained 7.5 days of instructional time over the course of a school year.

That was the first in a three-phase process of change. In the second, the district set a clear vision for instruction and professional learning. With support from Achievement Network coaches, leaders and teachers articulated goals, a theory of action for strategies to achieve them, and a plan for professional learning rooted in the ELA Guidebook units. As a result, the goals for professional learning time were streamlined from 10 down to just two, and the number of days teachers spent on curriculum-based professional learning increased from three to 10 over the course of a school year. These changes gave teachers the time and support they needed to deepen their understanding of the content, how students learn that content best, and how to use the curriculum materials to accelerate learning.

Finally, in the third phase, the curriculum materials were implemented in classrooms. This work established a strong foundation for shifts in teachers' instruction, and both the district and Achievement Network noted that the majority of teachers use the instructional materials as intended. Now, 100 percent of students in grades 6, 7, and 8 consistently engage with grade-level texts. And teachers, rather than spending their time searching for standards-aligned materials, are able to focus on refining their instruction to meet students' needs.

"Coaching conversations become so much deeper when you don't have to worry about what's being put in front of students," said Nicki McCann, superintendent of Caldwell Parish School District. "We no longer have to worry about the materials that teachers have in front of them. We know they are teaching with high-quality instructional materials and that they understand the importance of why the curriculum is put together in the way that it is."



These won't be quick fixes. Rigorous, inquiry-based teaching and learning require teachers to make fundamental shifts in habits, skills, knowledge, and beliefs. They require substantial changes in instructional culture and priorities.

A CALL TO ACTION

We share these ideas at a time of unique challenges and opportunities. Schools around the world are grappling with unprecedented disruption due to COVID-19 and will be working to help students make up for lost learning and teaching time for years to come. As ever, though, what will have the greatest influence on student outcomes is the quality of teaching and instructional materials. Efforts to broaden access to high-quality teaching and curriculum belong at the top of every system's improvement agenda.

We need to accept that teachers are poorly served by traditional approaches to professional learning. Professional development programs have not had substantial positive impacts on teacher performance or student outcomes, and teachers often view them as compliance exercises with little relevance to their work. Still, teachers haven't given up on professional learning, at least not in theory. They are curious about their work and committed to their students. And when we ask teachers what they want, the answer is clear: the instructional materials, skills, and understanding they need to meet rigorous new standards for student achievement.

We have the knowledge and tools to help. A strong evidence base shows that high-quality instructional materials accelerate student learning and that their impact grows even larger when teachers participate in curriculum-based professional learning. Yet in too many cases, instruction is poorly aligned to the research on learning, and a wide gap remains between

traditional teacher professional development and what is needed to teach well with high-quality instructional materials. These differences are most stark in classrooms serving students of color, who have far less access to rigorous curriculum and inquiry-based instruction than their peers.

Putting high-quality instructional materials and curriculum-based professional learning at the core can help us meet the challenges of the moment and continue to drive improvements in teaching and learning that reach all students. We can capitalize on the investments states and systems have already made in adopting new standards by better connecting teachers with curriculum developers and professional learning providers. In providing these supports, we can give teachers what they so clearly want and what research and evidence from the field indicate they — and their students — need.

These won't be quick fixes. Rigorous, inquiry-based teaching and learning require teachers to make fundamental shifts in habits, skills, knowledge, and beliefs. They require substantial changes in instructional culture and priorities. We offer the 10 Elements and three Essentials as both a guide and a call to action.



Recommendations for Teachers

The Elements of Curriculum-Based Professional Learning

Core Elements



- Develop deep expertise in your teaching content and the curriculum and in the instructional materials you use with students.
- Assess and clarify beliefs and assumptions about teaching, learning, curriculum, and students on an ongoing basis.
- Maintain high expectations for students and commit to learning new ways to scaffold instruction.
- Learn about students' communities, cultures, racial and ethnic backgrounds, strengths, and interests, and use that understanding to employ culturally responsive teaching strategies.
- Base opinions and value of curriculum on use and results with students.

Functional Elements



- Step away from the teacher role and commit to learning opportunities that ask you to wear a "student hat."
- Accept that discomfort is a necessary part of the learning process.
- Develop a habit of daily journaling or engage in other forms of reflective practice to promote personal growth.
- Seek feedback and support from peers, coaches, and supervisors throughout the curriculum implementation process.
- Contribute to and use change management tools, including innovation configuration maps, to guide improvement efforts.

Structural Elements



- Review the research on collaborative learning structures and their implications for curriculum implementation with colleagues.
- Hold yourself and others accountable for meaningful participation in collaborative learning.
- Seek internal and external expertise and support to advance individual and group learning.
- Document the impact of time spent on curriculum-based professional learning on your practice and students.
- Communicate to parents and other stakeholders the value of curriculum-based professional learning.

Essentials



- Contribute to and champion a vision for teaching and learning supported by curriculum-based professional learning.
- Be able to explain curricular coherence that transcends grade levels or courses.
- Limit supplementary materials to those that are clearly aligned with the vision for teaching and learning and core curriculum.
- Be advocates and good stewards of professional learning time and resources, and hold peers and facilitators to the same standards.
- Advocate for professional learning grounded in district curriculum and instructional materials.

Recommendations for Professional Learning Providers and Coaches

The Elements of Curriculum-Based Professional Learning

Core Elements



- Anchor professional learning in district curriculum and instructional materials.
- Deepen expertise in relevant content, pedagogical content knowledge, and teaching pedagogy.
- Demonstrate the relationship between beliefs and the use of new instructional materials by creating experiences that involve examining assumptions, perceptions, and practices.
- Help teachers to understand connections between instructional materials and the culture, context, race, and ethnicity of students.

Structural Elements



- Advise and guide system and school leaders to establish collaborative learning teams by grade and content area.
- Provide ongoing support for collaborative learning teams, including learning protocols anchored in curriculum implementation.
- Make visible and explicit to teachers and others the learning models that support the implementation of instructional materials.
- Support the development of change management plans that recognize and allocate the essential time needed for curriculum implementation.
- Document the impact of time invested in curriculum-based professional learning.

Functional Elements



- Introduce teachers to new curriculum and reinforce its use through experiences that mirror the instructional approaches they will use with students.
- Apply research on how to shift beliefs and embed opportunities for cognitive dissonance and its resolution in professional learning.
- Develop expertise, guide development, and use change tools to provide feedback and support curriculum implementation.
- Demonstrate how to shape lessons that address students' culture, context, race, and ethnicity.
- Equip teachers to scaffold lessons to connect less-prepared students with rigorous content and learning experiences.

Essentials



- Help leaders, teachers, and coaches articulate and amplify a shared vision for teaching and learning that addresses each subject or grade level and the role of curriculum-based professional learning.
- Create professional learning materials that build internal leadership capacity among teacher leaders, coaches, and school leaders.
- Support opportunities to extend resources through partnerships, open education resources, and other funding sources.
- Identify questions that advance coherence during curriculum selection and implementation.
- Advocate for professional learning grounded in district curriculum and instructional materials.

Recommendations for System and School Leaders

The Elements of Curriculum-Based Professional Learning

Core Elements



- Ensure all teachers have access to high-quality instructional materials and professional learning to support their implementation.
- Establish support for the implementation of curriculum as the top priority for professional learning.
- Deploy skilled leaders and facilitators who support and recognize the importance of examining beliefs and assumptions throughout curriculum-based professional learning.
- Require curriculum-based professional learning, in both its design and facilitation, to be grounded in high-quality instructional materials, to deepen teachers' content knowledge, and to prepare teachers to use the materials successfully with all students.

Structural Elements



- Hire and develop professional learning designers, facilitators, and coaches with expertise in content and curriculum and facilitating collaborative learning.
- Review decision-making criteria that guide the selection of models of professional learning used with leaders and professional developers.
- Demonstrate commitment by engaging in sessions designed for leaders and teachers and sharing reflections.
- Audit and prioritize resources, including time for curriculum-based professional learning.
- Establish calendars and pacing guides that document the support, materials, and time to be allocated to curriculum implementation.

Functional Elements



- Develop professional learning designers, facilitators, and coaches through learning experiences that resemble those they will use with teachers.
- Establish evaluation and feedback cycles to assess the progress and impact of investments in curriculum-based professional learning.
- Expect curriculum-based professional learning to challenge beliefs and assumptions, mirror the instructional approaches students will experience, and promote reflection.
- Deploy professional learning designers, facilitators, and coaches to develop and use change tools to support successful curriculum implementation.
- Adopt a change management plan that identifies key phases of curriculum implementation and the supports required during each.

Essentials



- Develop and promote a shared vision for teaching and learning that addresses each subject and the role of curriculum-based professional learning in supporting that vision.
- Build the capacity of formal and informal leaders at all levels to support curriculum-based professional learning.
- Ensure multiyear support for the implementation of high-quality instructional materials.
- Adopt policies and practices that promote (and eliminate those that inhibit) coherent systems of support for curriculum implementation.
- Combine the selection and purchase of high-quality instructional materials with support for implementation.

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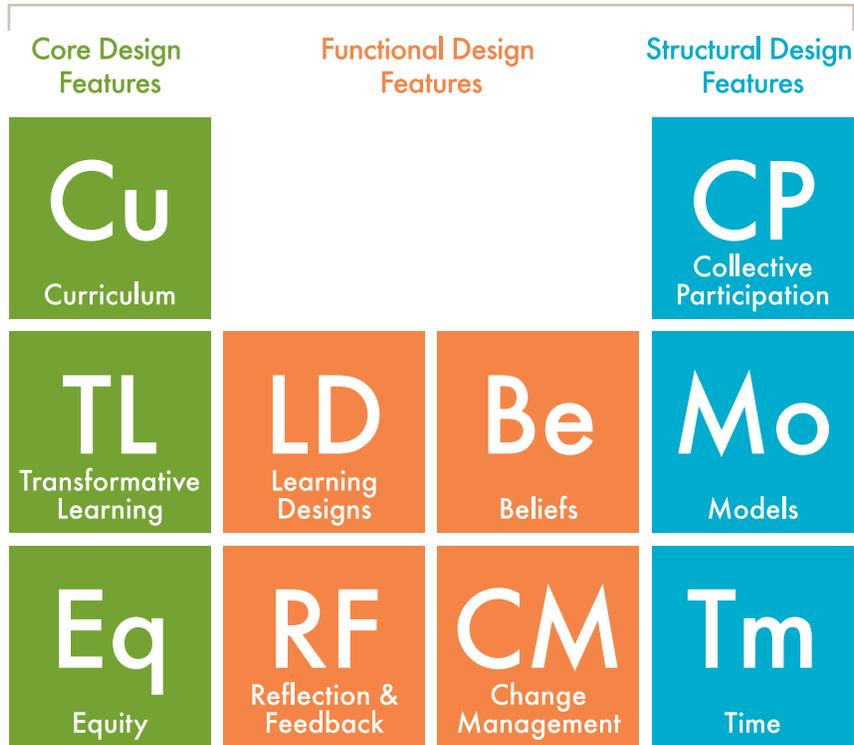
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The Elements

of Curriculum-Based Professional Learning



The Essentials



The Elements are the expectations and according actions that school and district leaders, curriculum developers, and teacher development organizations take to promote and design curriculum-based professional learning. They include:

- **core design features**, which focus on the purpose of curriculum-based professional learning
- **functional design features**, which shape teachers' experiences
- **structural design features**, which describe parameters and settings

Elements may be used in different combinations depending on what individuals and organizations need at different times. But all curriculum-based learning rests on **the Essentials** – the expectations for system and school leaders that nurture growth and change.



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