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vol. 79 / Spring 2018

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In this issue

Student learning that works

We often ask students "*What* are you thinking?" but have we ever thought to ask "*How* are you thinking?"

Students might struggle to answer that question . . . and many adults would too. But scientists who study brain function and memory have uncovered quite a bit about how we acquire knowledge and store it away for later retrieval and application—or, as often happens, lose it before we can use it.

It's a curious process, and learning about it got my colleague Bryan Goodwin curious about the alignment between how the brain learns and how instruction typically occurs. Could we help students learn, retain, and apply more, if we use specific instructional strategies at specific times, to align with the stages of memory our students' brains are in?

In this issue of *Changing Schools*, Bryan discusses the stages of memory and offers instructional strategies well suited to each, creating a *student learning model* that teachers can use to plan lesson delivery and reflect on professional practice.

In our other articles, we take a look at school improvement initiatives, presenting an "inside-out" approach that empowers school leadership teams to take control of analyzing and identifying their bright spots and their focus areas for improvement, and to create next steps that are highly contextualized to their school community.

The structures for this process are drawn from research and an evidence base of best practices from schools in the U.S. and Australia. Kristin Rouleau, one of McREL's school and system improvement experts, summarizes the six phases of an inside-out process that help school teams develop and put in place changes that lead to greater collective expertise, shared innovation, and better outcomes for students.

We hope these articles, and the others in this issue, spark your curiosity.

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Introducing a research-inspired student learning model

By Bryan Goodwin

Many teachers would probably readily agree that *teaching* isn't the main goal in the classroom, it's learning. That's an important distinction, one that shifts our focus to the outcome (did our students learn?), as opposed to the process (did we teach the content?).

As intuitive as that sounds, it stands in contrast to many education policies, mandates, and frameworks currently in place that focus on the "what" of teaching, giving teachers copious and detailed guidance on instructional practices. If the outcome is more important than the process, shouldn't we shift our attention to what we really need to know: how students actually *learn*?

I think so. My interactions with thousands of teachers and school leaders, and my reading on brain science and memory, have convinced me of two things that will help:

1. Teachers need to understand how memory works. The brain plays all kinds of tricks to get us to remember some things but forget others, and we need to know how to trick it back. That's right: The human brain can be outwitted.
2. Teachers today are inundated with instructional frameworks that are just too complex, comprehensive, and fine-grained to be useful. A *model for learning*, by contrast, provides a straightforward process to help teachers design and deliver better learning opportunities for students come Monday morning.

Memories in the unmaking

Sometimes, remembering is too hard. (Why shouldn't we be able to remember the Japanese language after watching a single Studio Ghibli movie?) Sometimes, it's too easy. (That one thing I said in that one toast at that one wedding that one time just won't go away.) What is it about our brains that seems to not want us to get memory just right?

Most stimuli we experience are almost immediately forgotten; otherwise we'd go mad from too many memories bouncing around, uncategorized and useless. (A few people do; they have a rare condition called hyperthymesia [McRobbie, 2017]). For most of us, however, any new stimulus must survive multiple forgetting opportunities before it can find a home in the brain secure enough to be accessed and assessed repeatedly (Sousa, 2011). Here are the major phases of the journey:

- First, to learn anything, we must notice it with our ***sensory register***, creating a super-short-term memory of mere seconds. By design, our brains ignore most stimuli that cross our sensory register. Stimuli that make it through our filters enter our ***immediate memory***, where we hold data for about 30 seconds.
- If we consciously focus on what's in our immediate memory (for example, by writing notes or underlining text), we begin to move information into ***working memory***, where we can hold it anywhere from 5–20 minutes before it either decays or continues the journey to ***long-term memory***.
- Whether information completes the final stage of the journey and finds a home in ***long-term memory*** depends on whether we decide to go on more than one date, so to speak, with the new information through further repetition, rehearsal, contextualization, or application.

The implications for educators

Armed with this understanding, we can create a learning model that arranges strategies for teaching and learning (like those found in Classroom Instruction That Works®, see page 16 of this issue) into a larger process for helping new knowledge travel through our students' memory stages. Following are the basics (which I dive into more deeply in a recent McREL white paper titled *Student Learning That Works*).

Sensory register and immediate memory

- **Capture student interest.** The external stimuli that make it past our brain's mental filters tend to be of two varieties: those that stir our emotions and those that arouse our curiosity (typically in that order, by the way). Our brains default to ignoring almost everything else. This means that to start the learning process—to get information past our students' mental filters—we need to help them feel comfortable in their learning environment, and then begin the lesson with some form of emotion about the content (e.g., excitement, indignation, passion) and/or intellectual stimulation to leave them scratching their heads in wonder.
- **Help students commit to learning the new knowledge**. Sparking initial interest is vital but only gets us so far; to go beyond learning mere tidbits of information or discrete skills, students must take the next step and commit to learning more. Teachers can help students do this by presenting new knowledge and skills as part of a big picture that impacts their lives, and help them to set clear, reachable goals for their learning. In short, when it comes to learning, we need to help students answer the question, *What's in it for me?*

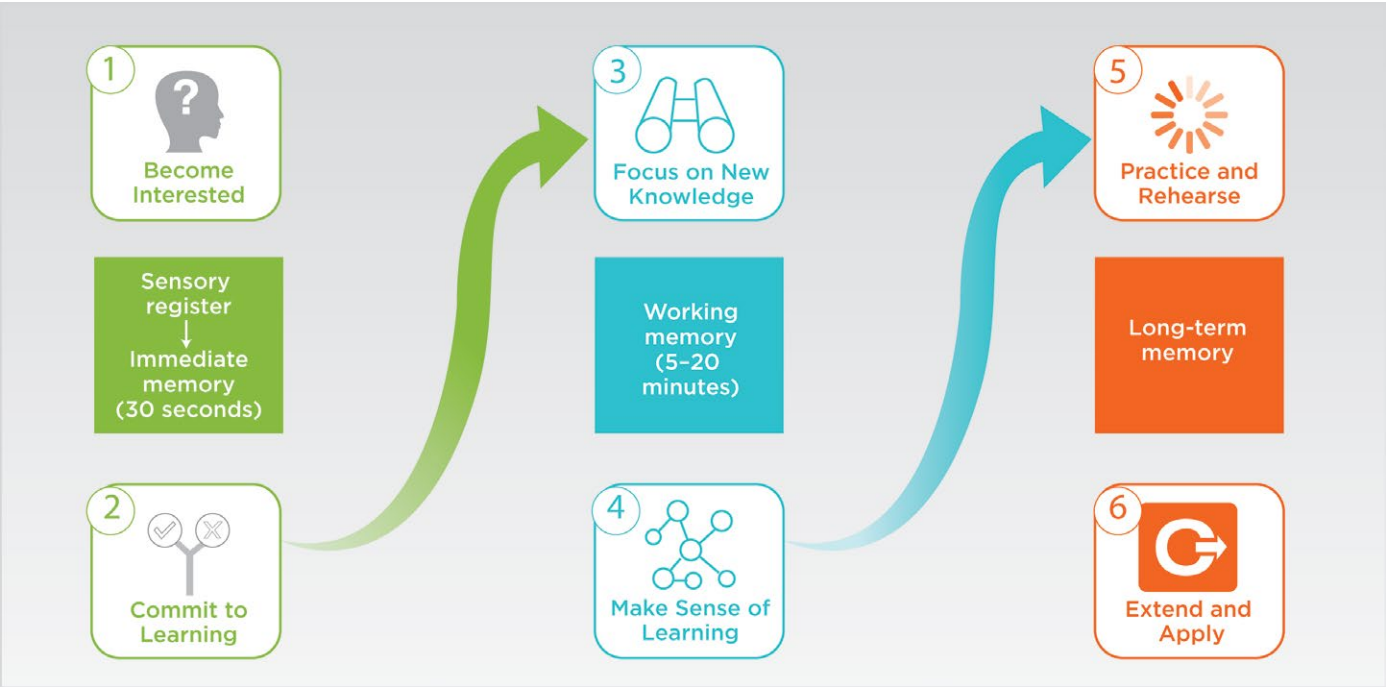
Working memory

- **Help students focus on new knowledge**. Once students are "thirsty" for new knowledge, they must acquire it by actively *thinking about* what they're learning. They might participate in a question-and-answer session, engage in close reading of text, follow a process as it's modeled, create a non-linguistic representation of concepts, or take notes during a lecture. All these active learning processes, especially when used in combination, help knowledge soak deeper into the brain.
- **Help students make sense of learning**. Because of the limitations of working memory, we must "chunk" learning into bite-size segments interspersed with opportunities to connect new learning with prior knowledge, and then cluster ideas together. That's how our brains store knowledge, in fact: as webs of ideas and memories. So, while knowledge remains in our working memory, we must "make sense" of it before the details fade.

Long-term memory

- **Help students practice/rehearse using the new knowledge.** To store learning into long-term memory, we must get familiar with it, using it more than once. Cramming seldom works. Rather, we're more apt to remember what we learn when we engage in *distributed practice* (practice sessions a few days apart) and *retrieval practice* (being quizzed on or quizzing ourselves on new knowledge). Learning science shows that searching our memories for knowledge that's begun to fade rekindles those waning neural networks and strengthens memory. So, giving students multiple opportunities over time to repeat, rehearse, and retrieve new information makes them more apt to commit new learning to memory.
- **Help students extend their new knowledge and apply it to new situations and contexts**. We've all likely experienced the frustration of struggling to jog our memory for an important bit of information. Often what's going on in our brains when this happens is that we've *stored* the information but have too few neural pathways to *retrieve* it—certainly far fewer than those involved with information we use regularly or think about often. This use-or-lose-it principle of learning suggests that students more readily *retrieve* knowledge when they develop multiple connections to it by, for example, digging more deeply into it or using it to solve real-world problems.

We might visualize this entire process of learning looking something like the diagram below:



And there it is: a simple, six-phase model for student learning!

Be forewarned, simple doesn't necessarily mean easy. But becoming acquainted with a learning model certainly should be gratifying—as a way to help teachers reflect on their impact on students and support deeper professional dialogue with colleagues, for example. An important "flip" happens when we design lessons around learning, rather than simply teaching.

> "Becoming acquainted with a learning model certainly should be gratifying—as a way to help teachers reflect on their impact on students and support deeper professional dialogue."

We begin to view our classrooms through the eyes of our students, which in turn makes us more intentional as teachers, prompting us to ask ourselves, *Why am I doing this?* Perhaps most important, we can never really get to personalized learning for students if we focus only on instruction, which positions students as passive recipients rather than active participants in their own learning.

Bryan Goodwin is CEO of McREL International and co-author of *Curiosity Works* (2018), *Balanced Leadership for Powerful Learning* (ASCD, 2015) and *The 12 Touchstones of Good Teaching* (ASCD, 2013). Contact him at bgoodwin@mcrel.org or on Twitter @BryanRGoodwin.

References

McRobbie, L. R. (2017, Feb. 8). Total recall: The people who never forget. *The Guardian.* Retrieved from https://www.theguardian.com/science/2017/feb/08/total-recall-the-people-who-never-forget

Sousa, D. A. (2011). *How the brain learns.* Thousand Oaks, CA: Corwin.

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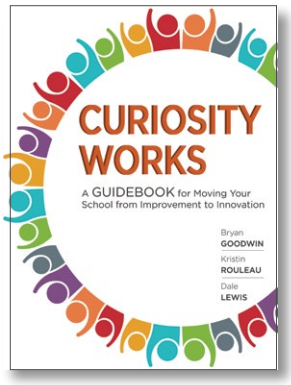

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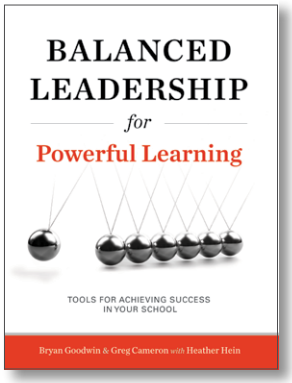

Balanced Leadership for Powerful Learning

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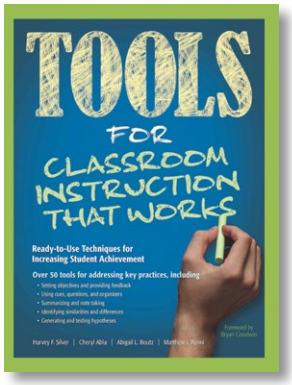
113 pages $23.95 18 tools & activities for your team

What makes a great school leader? It's not a certain kind of innate personality, but rather is a set of specific behaviors and actions that any school leader can learn and put into practice. This book identifies the 21 responsibilities associated with student achievement and shows how they relate to three key elements of effective leadership: establishing a clear focus, managing change, and developing a purposeful community.



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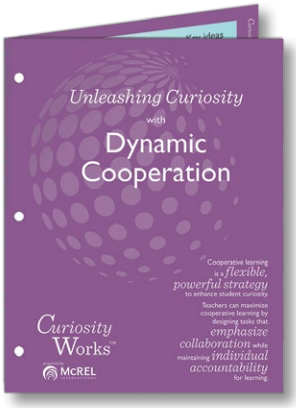

Unleashing Curiosity with Dynamic Cooperation (NEW!)

Latest quick guide in 6-part series with tips & strategies for effective teaching

8 pages $12.95 Includes professional reflection guide

Cooperative learning, often characterized by students working in small groups, brings alive the adage "To teach is to learn." Part of our Unleashing Curiosity™ quick guide series, this 8-page guide gives tips and ideas teachers can use to create a variety of dynamic cooperative learning activities that help their students develop communication, collaboration, reflection, and leadership skills, while still retaining individual accountability. Also contains a rubric for guiding teacher reflection on professional practices.

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Dynamic and engaging classrooms—how they look, feel, and sound

By Lisa Maxfield, Cheryl Abla & Christine H. Schmidt

What does an engaging classroom—one that has relevant, hands-on learning; one that students just can't wait to enter each day—look, feel, and sound like? Every teacher wants one, and the most engaging teachers strive to create it every day by continually asking, *What keeps students really engaged? What keeps them wanting to come back?*

At its essence, an engaging classroom makes learning fun. In *The 12 Touchstones of Good Teaching: A Checklist for Staying Focused Every Day*, Bryan Goodwin outlines three imperatives of effective teaching—**be intentional**, **be supportive**, and **be demanding**. But what do these three imperatives look like in action in dynamic, engaging classrooms?

Intentional teaching inspires intentional learning

First and foremost, students need to connect with the *why* of learning. At one time or another, most teachers have probably endured a chorus of students pleading, *Why do we have to learn this?* This question is perfectly valid. We *should* ask ourselves before every lesson, *Why do my students have to know this?*

Being intentional means that teachers know and understand *why* they are doing *what* they are doing in the classroom to coach their students to deeper understanding and knowledge. Think about these four essentials of *being intentional*:

- **Make the most of every minute.** A great and ambitious goal for teachers is to plan their lessons for bell-to-bell learning, making the most of every minute. A few minutes lost at the beginning and end of class may not seem like a concern, but add up the minutes and it equals hours of lost instructional time over the course of a school year.
- **Help students develop deep knowledge.** Teachers are a key ingredient to helping students develop deep content knowledge. Teachers can help students make connections and see patterns with their learning. There must be true understanding of the content for the students to apply their learning to other contexts, as well.
- **Coach students to mastery.** Frequent checks of understanding, providing specific feedback, and identifying areas for improvement can all help students master the content. If teachers plow through the material without knowing whether students understand it, they're missing out on opportunities to provide support for student learning.
- **Help students do something with their learning.** Connecting new knowledge to real-world settings and showing how the learning can be applied will help students remember the content. When students understand the *why*, it will lead to deeper thinking and learning. Projects can help students apply their knowledge, as long as there is a research-based rationale, and you know why you are having them do the project.

Support student creativity, perseverance, and risk-taking (the good kind)

Being supportive means that a teacher interacts with students and encourages growth in a trusting, nurturing environment. Four main strategies to employ when *being supportive* are to:

- **Engage student interest with every lesson.** Find the "hook" that will get students excited to learn! Provide students choice about what to study, ask provocative questions related to the learning at hand to elicit unexpected responses and deepen classroom discussions, and tap into your students' existing knowledge and experience to make classroom discussions more relevant.
- **Interact meaningfully with every student.** Teachers should show a genuine interest in their students and their lives, asking about their skills, talents, and interests. By doing so, teachers will find areas which they can use to engage students in lessons.
- **Use feedback to encourage effort.** Research shows that feedback is one of the most powerful strategies to help students improve their performance. Provide explicit and descriptive feedback that is personalized for the student and includes specific guidance for future work.
- **Create an oasis of safety and respect in the classroom.** A student needs to feel safe and accepted to learn, and a positive classroom environment is a critical factor in this. Students should feel comfortable taking risks, and teachers should encourage students to step outside their comfort zone to meet their goals.

Demanding the best from your students, and helping them believe they can achieve it

Being demanding is about having high expectations of your students, helping them gain confidence in themselves, and encouraging them to take on more challenges. Try these methods for *being demanding* of your students:

- **Use standards to guide every learning opportunity.** Teachers need to use the district-approved standards to explicitly explain the learning, help students set and expand goals, develop challenging rubrics, and set high expectations. A demanding and highly effective teacher increases students' motivation and achievement by supporting and encouraging them to meet high expectations.
- **Ensure students set personal learning objectives for each lesson.** It is imperative for students to set short- and long-term personal learning goals to feel successful about their education. Teachers should guide students' learning by unpacking each standard and looking for big ideas and opportunities for creativity.
- **Peel back the curtain and make performance expectations clear.** Student-created rubrics are excellent for providing performance expectations and criteria. Teachers can create their own rubrics, but, better yet, when students have a hand in creating them, they also gain ownership and understanding.
- **Measure understanding against high expectations.** A highly effective teacher sets and communicates high expectations, and provides opportunities for students to challenge themselves through appropriate assessments, feedback, and deepening of their critical-thinking skills. Collaborating with students to create an effort rubric is an excellent way for students to make the connection between their effort and success.

In addition to the cognitive needs of students, it's critical for educators in today's world to be cognizant of the social and emotional well-being of their students to help them move onward and upward. Fostering a risk-free climate built on trusting relationships and personalized learning is foundational to creating classrooms that are dynamic and engaging for students.

Lisa Maxfield and Cheryl Abla are consultants for McREL International's Innovation Group. **Christine H. Schmidt** is a marketing consultant and an assistant editor for *Changing Schools*. You can reach all three authors via info@mcrel.org.

A six-phase process for school improvement and innovation

By Kristin Rouleau

Too often, my colleagues and I have met dispirited teachers and school leaders who did everything they were asked (or required) to do by local, state, and federal mandates, got early results . . . and then the progress stalled. They got stuck on a performance plateau.

To help them get unstuck, we've used research, evidence, and analysis to create a new "inside out" approach to school improvement that—rather than being yet another externally directed "outside-in" program—is centered on leveraging a school's existing bright spots, collective expertise, and professional curiosity. We call it Curiosity Works™.

This article is a summary adaptation of content from McREL's recent white paper and guidebook on the Curiosity Works school improvement process. To learn more, visit mcrel.org/curiosityworks.

Curiosity Works has six main phases which are summarized here in roughly chronological order, but we don't prescribe it as a "program" to be followed in lockstep. Perhaps the most significant way that this process differs from the more common top-down, outside-in improvement initiatives is that we embrace the reality that the precise path forward is unlikely to be identical for any two schools. At its heart, Curiosity Works is a guide for your school leadership team's self-directed journey.

Throughout this journey, your school team will progress through four stages of improvement:

- ***Adopting better routines*** to increase the quality of teaching and learning
- ***Ensuring greater consistency*** from classroom to classroom in using the better routines
- ***Developing collegial expertise*** among teachers, supporting their learning from one another and adapting best practices in their classrooms to more precisely meet the needs of their students
- ***Fostering shared innovation*** by trying new practices in rapid-cycle innovation processes to see what works best, and sharing what's been learned among all team members

Phase 1: Get ready—commit to shared values, moral purpose, and vision

In our research on high-performing schools, McREL has found that school organizational culture is the "secret sauce" of performance. And a key component of a great school culture is having a set of shared values, moral purpose, and vision that guide your school staff's professional dialogue, reflection, and decision making.

Values are the written and unwritten rules that guide your school's behaviors. They answer these critical questions:

- How do we behave, especially when no one is looking?
- What behaviors have we cultivated over time that distinguish us from other schools?
- What do we value so much that we're willing to make sacrifices for it?

Moral purpose is the *why* behind what you do. Basically, when schools succeed it's because staff gel around a common purpose, sharing a clear understanding of the big, important reasons they are in education and what they are hoping to achieve. We advise school leaders to build "purposeful" communities, starting with articulating shared outcomes that matter to everyone.

Vision is a concise statement that captures your school's aspirations for the future. Don't spend forever wordsmithing because vision statements can and should change over time. But do give it thought. The best vision statements are often simple statements that capture big ideas that seem just a bit beyond your reach, yet flow naturally from your moral purpose. The simpler, the better.

Identifying your school's values, moral purpose, and vision must be a collaborative effort, with your leadership team engaging in reflection and conversation, and forming consensus. Leadership teams that have committed to a set of shared values, purpose, and vision are ready for Phases 2–6.

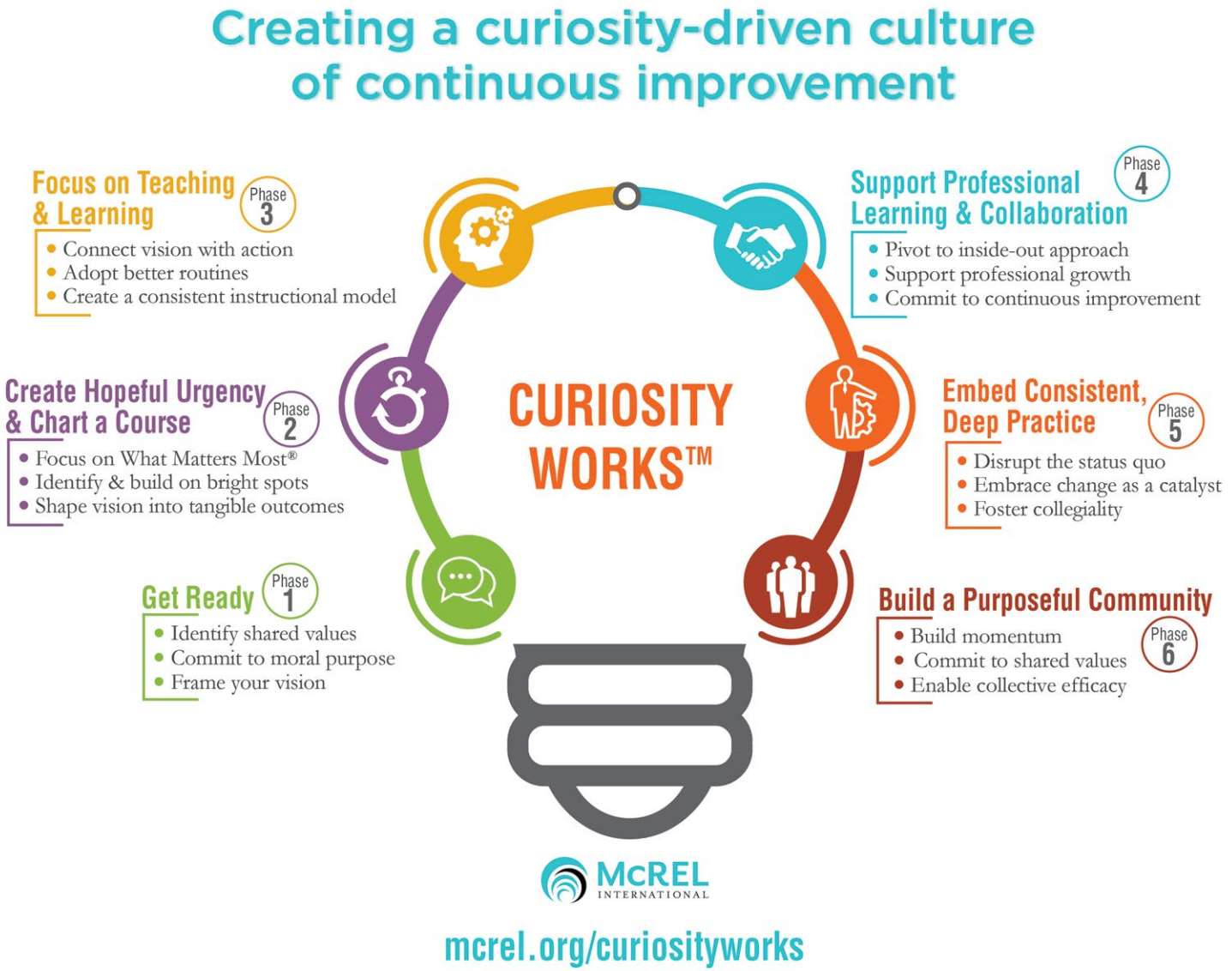
Phase 2: Create hopeful urgency and chart a course

What are we doing right . . . and what must we do better?

McREL's Balanced Leadership® research and analysis finds that effective school leaders inspire people to accept challenges that may seem initially beyond their reach, and describe change as an opportunity to move everyone toward a better future (Goodwin, Cameron, & Hein, 2015).

To get there, you need to look honestly and openly at your school—both your challenges and strengths—and agree on what to maintain and what to discard. This doesn't mean frightening everyone into thinking the sky is falling. Rather, it's creating a sense of urgency and making the status quo no longer acceptable. People who can envision the difference between the current reality and a preferred future are more willing to accept change for improvement, especially if they can identify bright spots in their school's data and practices to illustrate what is possible.

Where, then, to focus? That's a key question for many schools. Too many school improvement plans call upon people to do too many things at once and, as a result, they are often overwhelmed or unsure of where to focus, and end up doing nothing well. So, resist the urge to try and solve all your school's issues at once. Instead, select just one area of the What Matters Most®



framework listed below, which McREL's research (Goodwin, 2013) indicates make the biggest difference for students, and focus your improvement actions there.

- Guarantee challenging, engaging, and intentional instruction
- Ensure curricular pathways to success
- Provide whole-child student supports
- Create high-performance school cultures
- Develop data-driven, high-reliability systems

With a good understanding of where you want your school to be, it's time to start getting there.

Phase 3: Focus on teaching and learning

How will we help people transform professional practice? A natural place to start is with a model for instruction that integrates cognitive science on how to develop deep knowledge and skills with research on effective classroom instruction strategies (such as Classroom Instruction that Works):

Attention	Students use cues, questions, and advance organizers to access their prior knowledge and spark curiosity.
	Students set personalized learning objectives connected to larger learning goals.
Focus	Students acquire new knowledge through discovery or direct instruction aided by nonlinguistic representations and note-taking strategies.
	Students reflect on and process learning with similarities and differences, cooperative learning, and summarization.
Consolidation	Students engage in reflective independent practice, supported with checks for understanding and feedback.
	Students integrate, extend, and apply their new knowledge through problem solving, inquiry and investigation, and exploration of "big questions."

You'll notice that we've framed each stage of the process in terms of student learning—what happens in students' brains as they learn. This is quite intentional as it's where the action really occurs in a classroom. Also it's easier for teachers to make the shift to more personalized learning strategies when they focus on learning instead of just instruction.

Phase 4: Support professional learning and collaboration

The next step is to engage teachers in professional learning needed to achieve growth in your focus area, and provide supports needed to adopt new routines with consistency, develop expertise, or create new innovations.

Our Curiosity Works approach favors a peer coaching model of professional learning, in which teachers collaboratively identify and address problems of practice in their own classrooms or focus on a schoolwide problem of practice. While peer coaching can occur with two or more teachers, we advocate a triad model in which three teachers rotate among three roles: coach, coachee, and observer. Key to the relationship is that all three teachers are involved in determining the focus for coaching and feedback.

With a clear focus and a theory of action for improvement, these triad peer-coaching teams can own their own learning.

Phase 5: Embed consistent, deep practice

As schools improve and innovate, they encounter both technical problems and adaptive challenges. A technical problem is one that can be solved with existing know-how and solutions: people know what to do and just need to do it. Solving technical problems is basically a management issue: set expectations, provide timelines, give instructions.

An adaptive challenge, on the other hand, requires solutions that lie outside of current know-how and modes of operating. Addressing an adaptive challenge requires collaboration, creativity, experimentation, and a different style of leadership that knows how to manage change processes.

Early on, schools can make significant gains by addressing technical problems like enacting a curriculum in every classroom, establishing and enforcing behavior expectations, and using high-stakes testing. However, research reveals that school systems which rely only on technical solutions eventually see plateaus (Fullan, 2001; Hopkins & Craig, 2011; Barber & Mourshed, 2007). At this point, many schools and school systems get stuck; they keep trying to apply the technical solutions that worked in the past to what have become adaptive challenges.

To tackle adaptive challenges, it helps to have a purposeful community, one with collective efficacy.

Phase 6: Build a purposeful community

A purposeful school community is "one with the collective efficacy and capability to develop and use assets to accomplish goals that matter to all community members through agreed upon processes" (Marzano, Waters, & McNulty, 2005, p. 99). Key characteristics of a purposeful community include:

- Having a shared sense of purpose and identified outcomes that matter (see Phases 1 and 2)

- Having agreed-upon processes for instruction, coaching, and other school processes (see Phases 3 and 4)
- Using all available assets, leaving no bright spot unexplored or resource untapped
- Having collective efficacy, a widespread belief among individual school staff that they—individually and as a team—can make a difference for students

Collective efficacy has the potential to be a game changer. Research has found it to be a strong predictor of student achievement (Bandura, 1993; Goddard et al., 2000, 2004, 2007), even when accounting for differences in student background and prior achievement. That is, a faculty of teachers with a strong sense of collective efficacy is more likely to produce positive student outcomes than a faculty without these shared beliefs (Goddard et al., 2015).

> "Collective efficacy has the potential to be a game changer. Research has found it to be a strong predictor of student achievement, even when accounting for differences in student background and prior achievement."

Certainly, this is just a summary of the major mileposts in our recommended school improvement journey. For more details and resources, check out www.mcrel.org/curiosityworks.

No school is likely to be able to move through all six phases in a single school year. Just one phase could be the major focus for an entire semester or year.

Also keep in mind that change is often a messy process, and it can feel at times like you're taking two steps forward and one step back. The important thing is that you keep moving toward your vision.

Kristin Rouleau is senior director of learning services and innovation at McREL, working with schools, districts, and state departments of education as they navigate change and implement practices to increase student achievement. Contact her at krouleau@mcrel.org or 303.632.5547.

References

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist, 28*, 117–48.

Barber, M., & Mourshed, M. (2007). *How the world's best-performing school systems come out on top.* London: McKinsey and Company.

Fullan, M. (2001). *Leading in a culture of change.* San Francisco: Jossey-Bass.

Goddard, R. D., Goddard, Y. L., Kim, E. S., & Miller, R. (2015). A theoretical and empirical analysis of the roles of instructional leadership, teacher collaboration, and collective efficacy beliefs in support of student learning. *American Journal of Education, 121*(4), 501–530.

Goddard, R. D., Hoy, W. K., & Hoy, A. W. (2000). Collective teacher efficacy: Its meaning, measure, and effect on student achievement. *American Education Research Journal, 37*(2), 479–507.

Goddard, R. D., LoGerfo, L., & Hoy, W. K. (2004). High school accountability: The role of collective efficacy. *Educational Policy, 18*(3), 403–425.

Goddard, Y. L., Goddard, R. D., & Tschannen-Moran, M. (2007). A theoretical and empirical investigation of teacher collaboration for school improvement and student achievement in public elementary schools. *Teachers College Record, 109*(4), 877–896.

Goodwin, B. (2013). *Simply better: Doing what matters most to change the odds for student success.* Denver, CO: McREL.

Goodwin, B., Cameron, G., & Hein, H. (2015). *Balanced leadership for powerful learning: Tools for achieving success in your school.* Alexandria, VA: ASCD.

Hopkins, D., & Craig, W. (2011). Going deeper: From the inside out. In D. Hopkins, J. Munro, & W. Craig (Eds.), *Powerful learning: A strategy for systemic educational improvement* (pp. 153–172). Camberwell, Australia: Australian Council for Educational Research Press.

Marzano, R. J., Waters, T., & McNulty, B. (2005). *School leadership that works: From research to results.* Alexandria, VA: Association for Supervision and Curriculum Development.

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Formative assessment: Informal but hardly casual

By Kathleen Dempsey

For four years, McREL and IMPAQ International have studied the effectiveness of a program we call assessment work sample method (AWSM, or "awesome") in middle school math classes. Our ultimate hope—which is supported by early results—is that by increasing their use of formative assessment, teachers can combat the well-documented loss of confidence and achievement that many students experience in the STEM subjects during their middle school years (Beesley, Clark, Dempsey, & Tweed, 2018).

Formative assessment is a way for students to know where they stand on three essential questions about their learning: *Where am I going? Where am I now? Where to next?* It's characterized by frequent "check-ins" with students, sometimes via classwork and quizzes, but often via questioning and conversation. By design, it usually feels less formal than summative assessment, e.g., a final exam.

That informal feeling is a good thing if it facilitates easy interaction between student and teacher, but it doesn't mean teachers should be casual about creating a formative assessment strategy. Effective formative assessment is a collaborative process that should unite the student and teacher in clarity about learning expectations. The teacher may start this process by establishing protocols and classroom structures, but it won't go anywhere unless students buy in. Getting it right takes work on both sides.

The purpose of the AWSM project is to show teachers that, by supporting one another via peer learning, they can efficiently incorporate formative assessment into the school day without making it so time-consuming that other priorities get neglected. I thought it would be helpful to take a step back and identify some ways to help *students* participate effectively in formative assessment.

Internalize learning expectations

First, students must understand their learning expectations so thoroughly that they can be said to have internalized them, or as Bryan Goodwin notes in his article on page 2, they've committed to learning. Teachers support this process by clearly communicating learning objectives and performance expectations. Some teachers provide students with a tracking chart to gauge their own progress toward learning targets. Other teachers incorporate sample work products to help students distinguish characteristics of a high-quality performance from those of a lower-quality performance.

Peer feedback

Second, just as we at McREL are big proponents of peer learning for teachers, we want to see it become an important part of the learning process for students, too. Peer feedback is a process in which students provide feedback to each other on a specific task, clarifying what a quality performance "looks like" and/or "sounds like." If the feedback is to be effective, students must have a clear understanding of the task and the criteria: that is, what they should look for in the work. Peer feedback is a *learning* activity, not a scoring or ranking activity.

"Research shows that the people providing the feedback benefit just as much as the recipient, because they are forced to internalize the learning intentions and success criteria in the context of someone else's work, which is less emotionally charged than one's own," writes Dylan Wiliam, the British researcher who has contributed greatly to our understanding of formative assessment (2006).

> "If the feedback is to be effective, students must have a clear understanding of the task and the criteria: that is, what they should look for in the work."

In order for feedback to effectively reach its targeted audience, it must:

- Be specific and clear
- Be related to learning goals and performance criteria
- Provide the learner with suggestions, hints, or cues for how to improve rather than correct answers
- Be timely and relevant
- Focus on the task, not the student
- Identify what is done well and next steps for student work
- Make students think

Self-assessment

Third, let's not forget about *self*-assessment. Student self-assessment "stands alone in its promise of improved student motivation and engagement, and learning," researchers James H. McMillan and Jessica Hearn wrote (2008).

Self-assessment involves metacognition, which is the ability to monitor one's own thinking and a way to bring the learning process to a conscious level. Think of metacognition as an interior conversation:

- What is the problem all about?
- Do I understand the problem?
- Are there similarities/differences between the current problem and similar problems I have solved in the past?
- What strategies/tactics/principles can I use to solve the problem?
- Does the solution make sense? If not, why not? What do I do about it?

A quality-of-evidence rubric can further help students decide how close they are to meeting their learning objectives: *Have I achieved mastery? Partial mastery? Or is this still in progress?*

Incorporating the feedback

And fourth, students need to learn how to *incorporate* the feedback they get, whether from the teacher, peers, or themselves. Listening and nodding won't cut it; students need to revise their own work based on the feedback. This requires a healthy degree of self-regulation, which can be described as continuously monitoring their learning progress toward a goal, and making adjustments to redirect learning when necessary.

To help students move their learning forward, comments might be phrased as questions: *"What does the line on your graph tell you?"* rather than, *"Use change in* **y** *over change in* **x** *to find the slope."* Or: *"Your equation variables accurately represent the information in the problem. Can you clarify what steps you took next to solve the problem?"*

Another useful technique is "two stars and a wish"—beginning feedback with a comment about how the student has achieved some aspect of the learning goal, in addition to stating a desired goal to reach. For example: *"You have identified the main components of the problem and the variables. Can you now provide some examples and explain your claim?"*

Formative assessment, as we have shown in our research on the AWSM plan, is not only effective, but eminently doable by classroom teachers, especially if they support one another in the effort—which seems fitting considering formative assessment is a great way to help students learn to support one another's, and their own, academic progress.

Kathleen Dempsey, senior director at McREL, helps schools, districts, and state education agencies with strategic vision, program development, and training and coaching. Contact her at kdempsey@mcrel.org, 303.632.5634, or on Twitter @KdeDempsey.

References

Beesley, A. D., Clark, T. F., Dempsey, K., & Tweed, A. (2018). Enhancing formative assessment practice and encouraging middle school mathematics engagement and persistence. *Mathematics Education, 118*(1–2), 4–16.

McMillan, J. H., & Hearn, J. (2008). Student self-assessment: The key to stronger student motivation and higher achievement. *Educational Horizons, 87*(1), 40-49.

Wiliam, D. (2006). Formative assessment: Getting the focus right. *Educational Assessment, 11*(3–4), 283-289.

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Rural school surges in state ratings after embracing Classroom Instruction That Works®

Rocketing from "turnaround plan" to "performance plan" in Colorado's School Performance Framework means beating a lot of odds. But that's what McREL International and Gilcrest Elementary School, in Colorado's rural Weld County School District RE-1, accomplished together.

Forget what John Denver and the X Games have taught you about Colorado: Gilcrest is in farm country, not ski country, and serves an ethnically mixed student body, 63 percent of whom qualify for subsidized lunches. The faculty's energy and dedication were never in doubt, yet the school's standing in the first several state performance releases was grim.

"From 2010 on, the state said: You have five years to stop being turnaround, and after that we're going to do these drastic things to your school—replace the staff, replace the principal, reconstitute the school, turn it into a charter, close it altogether," said Tad McDonald, principal.

"There were some dire consequences they were using to try and motivate us to do better. Most turnaround schools stay in that status; even with state-level threats they're unable to make meaningful changes because of all the factors that got them there in the first place. So we've broken the mold of the expectations for a turnaround school," he said.

Strategic solution

McREL consultant Dr. Bj Stone helped the staff focus on two pivotal areas: using McREL's Classroom Instruction That Works and related instructional strategies to deliver the state content standards, and tightening up their data analysis.

"The biggest thing that has changed as a result of McREL's involvement is our teachers' knowledge of the content standards, because the teachers weren't sure what exactly they were supposed to teach and to what level. The wording of the standards doesn't provide descriptions and doesn't provide examples of what success for students would look like," said Jennifer Dunlap, the school's instructional coach.

Services McREL provided to Gilcrest Elementary School:

- Professional learning in Classroom Instruction That Works
- Monthly in-school, all-staff refreshers
- Data analysis designed to directly influence classroom practice

In addition, McREL's experience with data analysis helped the staff understand that for classroom interventions to succeed, the timing must be just right.

"Before, when we were analyzing our data, we were waiting until the end of the unit to do a re-teach if the kids didn't get it. When we were working with Dr. Stone, we said, 'That's too late, we need to check in with kids throughout the unit.' She helped us develop quick checks, a way for teachers to see where kids were in meeting the standards and success criteria. The objectives from Classroom Instruction That Works align to the success criteria," Dunlap added.

Results

The August 2017 reports revealed Gilcrest's students attained the highest level of achievement in their history. While the state's expectation for the top level of performance is 53 percent, Gilcrest Elementary School scored 75.9 percent.

School performance soars at Gilcrest Elementary

- Moved from **Turnaround** status to **Performance** status
- Received Colorado Governor's Distinguished Improvement Award for 2017
- **Increased leadership practices** that positively impact student achievement
- Increased focus on **implementing and sustaining research-based initiatives**

"We have been systematic and conscientious in each of our schools about identifying and teaching the essential standards. The principals are strong instructional leaders focused on developing and sustaining professional learning teams in their schools. I am, indeed, very happy with the growth and results at Gilcrest Elementary School. In fact, the results are incredible," said Don Rangel, district superintendent.

> "McREL has enabled us to focus on best practice in instruction. When I came to this school there were a lot of good intentions and a lot of expertise, but a lack of consistency. That's what the Classroom Instruction That Works model is all about: bringing consistency and best practice to your instruction."
>
> — Tad McDonald, principal, Gilcrest Elementary School

Especially heartening to Dunlap: The biggest gains were clustered in the academic growth measures—a strong indication that the momentum will continue.

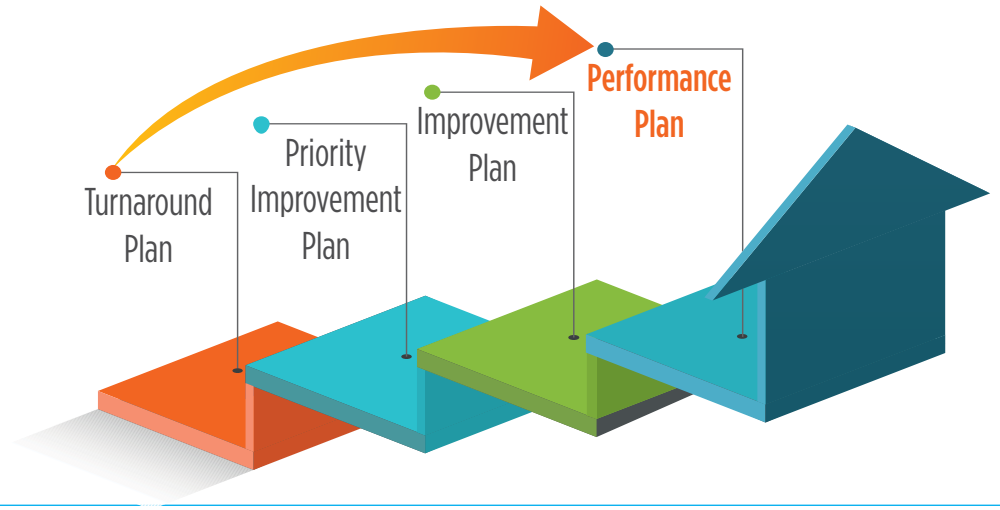
"Our achievement scores aren't as high as we would like them to be yet. The amount of growth that kids are having is what's pulling our scores up. If the students continue to grow, achievement will continue to improve as well," she said.

Other educators are taking note: In 2017, Gilcrest won a Colorado Governor's Distinguished Improvement Award, which recognizes longitudinal growth.

Next steps

Having already surpassed many "turnaround" schools by ranking high in academic growth several years running, faculty at Gilcrest Elementary now believe top achievement scores are within reach. They plan to continue honing the instructional consistency that Classroom Instruction That Works teaches, as well as the disciplined data analysis taught to them by their McREL consultant.

Gilcrest Elementary's increase on school performance framework



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