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Prevention Over Remediation: The Role of Strong Tier 1 Instruction in MTSS

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EDITOR'S NOTE

This Spotlight highlights how effective Tier 1 instruction in grades K–5 can **improve literacy and math outcomes**. Across topics, from word problems and spelling, to sentence structure, oral language, and reading motivation, the message is consistent: many student struggles originate in gaps in core instruction, not student ability. High-quality Tier 1 teaching integrates **foundational skills, rich language experiences, and conceptual understanding** while assuring learning is engaging and relevant through **play, discussion, and authentic reading and writing**. When elementary classrooms prioritize clear, consistent, and joyful instruction for all students, **fewer children need intervention** later, and schools build a stronger, more equitable foundation for **long-term academic success**.

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OPINION

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Why Word Problems Are Such a Struggle For Students—And What Teachers Can Do

By Sarah Schwartz

J.R. Bee for Education Week

Give Cindy Cliche a math word problem, and she can tell you exactly where most students are going to trip up.

Cliche, the district math coordinator in the Murfreesboro City school district in Tennessee, has spent decades teaching elementary schoolers how to tackle their first word problems and now coaches teachers in how to do the same. Kids' struggles, for the most part, haven't changed, she said.

Take this problem, which students might work on in 1st grade: There are some bunnies on the grass. Three bunnies hop over, and then there are five total. How many bunnies were there to begin with?

The problem is asking about a change: What's the starting, unknown quantity of bunnies, if adding 3 to that quantity equals 5? In other words, $x + 3 = 5$. But most 1st graders don't make that connection right away, Cliche said. Instead, they see the numbers 3 and 5, and they add them.

"Nine times out of 10 they're going to say, 'eight,'" Cliche said. "They're number pluckers. They take this number and this number and they add them together or they take them apart."

This is one of the biggest challenges in word problem-solving, educators and researchers agree—getting students to understand that the written story on the page represents a math story, and that the math story can be translated into an equation.

Making this connection is a key part of early mathematical sense-making. It helps students begin to understand that math isn't just about numbers on a page, but a way of representing relationships in the world. And it's one of the ways that kids learn to unite conceptual understanding of problems with the procedures they will need to solve them.

"When students struggle [with word problems], it tends to be everything else they have to do to get to the calculation," said Brian Bushart, a 4th grade teacher in the West Irondequoit schools in Rochester, N.Y.

There are evidence-backed strategies that teachers can use to help students make these connections, researchers say.

These approaches teach students how to understand "math language," how to devise a plan of attack for a problem, and how to recognize different problem types. And though they provide students tools and explicit strategies, these techniques are designed to support kids' sense-making, not circumvent it, said Lynn Fuchs, a research professor in the department of special education at Vanderbilt University.

The goal, she said, is "understanding the full narrative of what's being presented."

How word problems are used in early grades

Story problems serve a few different purposes in early grades, said Nicole McNeil, a professor of psychology at the University of Notre Dame who studies students' cognitive development in math.

They can help connect children's preexisting knowledge to the math they're learning in class—"activating that knowledge kids have in their everyday life, and then showing, how do mathematicians represent that?" McNeil said.

Cliche likes to use word problems in this way to introduce the concept of dividing by fractions.

"We'll tell the kids, 'I have three sandwiches here and I need to divide them in half so that everyone will get a piece,'" she said. "'How many people can I feed?'"

After students solve the problem, Cliche introduces the operation that students could use to divide by fractions—marrying this conceptual understanding with the procedure that students would use going forward.

But word problems can also be used in the opposite direction, to see if students can apply their understanding of equations they've learned to real-world situations, McNeil said.

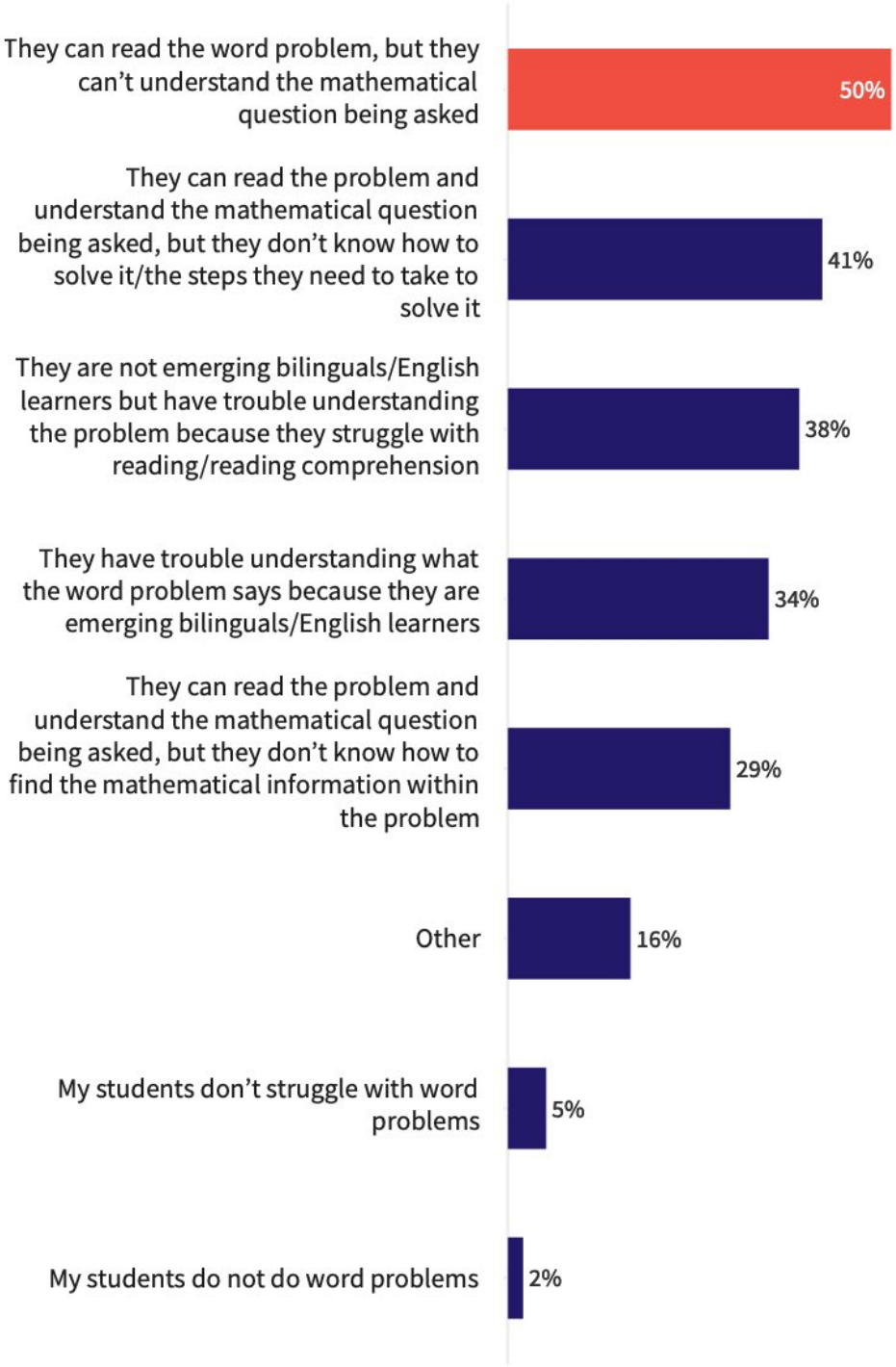
And there's another, practical reason that teachers practice word problems: They're ubiquitous in curriculum and they're frequently tested.

There are lots of different kinds of problems that kids could work on in math classes, said Tamisha Thompson, a STEAM (for science, technology, engineering, the arts, and math) instructional coach in the Millbury public schools in Massachusetts, and a doctoral student in learning sciences at Worcester Polytechnic Institute.

Many story problems have one right answer, but there are also problems that could have multiple answers—or ones that aren't solvable. Spending more time with a broader diversity of problems could encourage more creative mathematical thinking, Thompson said. "But we're really driven by standardized tests," she said. "And standardized tests typically have one right answer."

In general, between 30 percent and 50 percent of standardized-test items in math

When your students struggle with word problems, what are the MAJOR reasons why they are having trouble with the work? Select all that apply.



*Results show responses from math educators in the elementary grades.
SOURCE: EdWeek Research Center survey, April 2023

feature these kinds of story problems, said Sarah Powell, an associate professor in the department of special education at the University of Texas at Austin.

"Until things change, and until we write better and different tests, if you want students to show their math knowledge, they have to show that through word problem-solving," Powell said.

Why students struggle with word problems

Sometimes, students struggle with word problems because they don't know where to start.

Just reading the problem can be the first hurdle. If early-elementary schoolers don't have the reading skills to decode the words, or if they don't know some of the vocabulary, they'll struggle, said McNeil.

That can result in students scoring low on these portions of standardized tests, even if they understand the underlying math concepts—something McNeil considers to be a design flaw. "You're trying to assess math, not reading twice," she said.

Then, there's math-specific vocabulary. What do words like "fewer than," or "the rest," mean in math language, and how do they prompt different actions depending on their placement in a problem?

Even if students can read the problem, they may struggle to figure out what it's asking them to do, said Powell. They need to identify relevant information and ignore irrelevant information—including data that may be presented in charts or graphs. Then, they have to choose an operation to use to solve the problem.

Only once students have gone through all these steps do they actually perform a calculation.

Teaching kids how to work through all these setup steps takes time. But it's time that a lot of schools don't take, said Cliche, who has also worked previously as a state math trainer for Tennessee. Word problems aren't often the focus of instruction—rather, they're seen as a final exercise in transfer after a lot of practice with algorithms, she said.

A second problem: Many schools teach shortcut strategies for deciphering word problems that aren't effective, Powell said.

Word problem "key words" charts abound on lesson-sharing sites like Teachers Pay Teachers. These graphic organizers are designed to remind students which math words signal different operations. When you see the

word "more," for example, that means add the numbers in the problem.

Talking with students about the meaning of math vocabulary is useful, said Powell. But using specific words as cues to add or subtract is a flawed strategy, Powell said, because "there is no single word that means an operation." The word "more" might mean that the numbers need to be added together—or it might mean something else in context. Some problems have no key words at all.

In a 2022 paper, Powell and her colleagues analyzed more than 200 word problems from Partnership for Assessment of Readiness for College and Careers (PARCC) and Smarter Balanced math tests in elementary and middle school grades. Those tests are given by states for federal accountability purposes.

They found that using the key words strategy would lead students to choose the right operation to solve the problem less than half the time for single-step problems and less than 10 percent of the time for multistep problems.

Evidence-based strategies for helping struggling students

So if key words aren't an effective strategy to support students who struggle, what is?

One evidence-based approach is called schema-based instruction. This approach categorizes problems into different types, depending on the math event portrayed, said Fuchs, who has studied schema-based instruction for more than two decades.

But unlike key words, schemas don't tell students what operations to use. Instead, they help students form a mental model of a math event. They still need to read the problem, understand how that story maps onto their mental model, and figure out what information is missing, Fuchs said.

One type of schema, for example, is a "total" or "combine" problem, in which two quantities together make a total: "Jose has five apples. Carlos has two apples. How many apples do they have together?" In this case, students would need to add to get the answer.

But this is also a total problem: "Together, Jose and Carlos have seven apples. If Jose has five apples, how many apples does Carlos have?"

Here, adding the two numbers in the problem would bring students to the wrong answer. They need to understand that seven is the total, five is one part of the total, and there is another, unknown part—and then solve from there.

To introduce schemas, Vanderbilt's Fuchs said, "we start with a child and the teacher representing the mathematical event in a concrete way."

Take a "difference" problem, which compares a larger quantity and a smaller quantity for a difference. To demonstrate this, an early-elementary teacher might show the difference in height between two students or the difference in length of two posters in the room.

Eventually, the teacher would introduce other ways of representing this "difference" event, like drawing one smaller and one larger rectangle on a piece of paper. Then, Fuchs said, the teacher would explain the "difference" event with a number sentence—the formula for calculating difference—to connect the conceptual understanding with the procedure. Students would then learn a solution strategy for the schema.

Children can then use their understanding of these different problem types to solve new problems, Fuchs said.

There are other strategies for word-problem-solving, too.

Attack strategies. Several studies have found that giving students a consistent set of steps they can use to approach every problem has positive effects. These attack strategies are different from schemas because they can be used with any problem type, offering more general guidance like reminders to read the problem and pull out relevant information.

Embedded vocabulary. A 2021 study from Fuchs and her colleagues found that math-specific vocabulary instruction helped students get better at word problem-solving. These vocabulary lessons were embedded into schema instruction, and they focused on words that had a specific meaning in a math context—teaching kids the difference between "more than" and "then there were more," for example.

'Numberless' problems. Some educators have also developed their own strategies. One of these is what's called "numberless" word problems. A numberless problem has the same structure as a regular story problem but with the quantities strategically removed. An initial statement might say, for example, "Kevin found some bird feathers in the park. On his way home, he lost some of the feathers."

With numberless problems, instead of jumping to the calculation, "the conversation is the goal," said Bushart, the 4th grade teacher from New York, who has created a website bank of numberless problems that teachers can use.

The teacher talks with students about the change the story shows and what numbers might be reasonable—and not reasonable. The process is a form of scaffolding, Bushart said: a way to get students thinking conceptually about problems from the start.

Balancing structure and challenge

These approaches all rely on explicit teaching to give students tools that can help them succeed with problems they're likely to see often in class or on tests.

But many math educators also use word problems that move beyond these common structures, in an attempt to engage students in creative problem-solving. Figuring out how much structure to provide—and how much challenge—can be a delicate balance.

These kinds of problems often require that students integrate real-life knowledge, and challenge them to "think beyond straightforward applications of mathematical situations," said McNeil of Notre Dame.

There may be an extra number in the problem that kids don't have to use. Or the problem might pose a question that would lead students to a nonsensical answer if they just used their procedural knowledge. For example: 65 students are going on a field trip. If each bus can hold 10 students, how many buses are needed?

Students might do the calculation and answer this question with 6.5, but that number doesn't make sense, said McNeil—you can't have half a bus.

In a 2021 study, McNeil and her colleague Patrick Kirkland rewrote some of these challenging questions in a way that encouraged students to think more deeply about the problems. They found that middle school students who worked on these experimental problems were more likely than their peers to engage in deep mathematical thinking. But, they were also less likely to get the problems correct than their peers who did standard word problems.

Other research, with young children, has found that teaching students how to transfer their knowledge can help them work through novel problems.

When students are given only problems that are all structured the same way, even minor changes to that format can prevent them from recognizing problem schemas, said Fuchs.

"What we found in our line of work is that if you change the way the word problem reads, in only very minor ways, they no longer recognize that, this is a 'change' problem, or a 'difference' problem," she said, referencing different problem schemas.

In the early 2000s, she and her colleagues tested interventions to help students transfer their knowledge to more complex, at times

open-ended problems. They found that when children were taught about the notion of transfer, shown examples of different forms of the same problem type, and encouraged to find examples in their own lives, they performed better on novel, multistep problems than their peers who had only received schema instruction.

The results are an example of how explicit instruction can lay the groundwork for students to be successful with more open-ended problem-solving, Fuchs said.

Exactly how to sequence this learning—when to lean into structure and when to release students into challenge—is an open question, McNeil said.

"We need more researchers focused on what are the best structures? What order should things go in? What is the appropriate scope and sequence for word problems?" she said. "We don't have that information yet." ■

Reading Eggs Mathseeds

Prevention Over Remediation: **The Role of Strong Tier 1 Instruction in MTSS**

Introduction

Every benchmark cycle tells the same story: intervention lists grow, specialist caseloads stretch, and remediation budgets expand.

When 30–40 percent of students consistently fall below proficiency benchmarks, the issue is rarely dozens of individual learning gaps. It is a system-level signal about the strength of Tier 1 instruction. Addressing it at the source is both the most effective and the most cost-efficient decision district leaders can make.

Strong Tier 1 instruction is the foundation of an effective Multi-Tiered System of Supports (MTSS). When core instruction works, most students succeed without additional support, intervention resources are reserved for those who truly need them, and districts can sustain improvement without constantly expanding remediation.

Why Tier 1 Deserves More Attention

MTSS is designed to support students through a tiered structure:

- Tier 1: High-quality, evidence-based core instruction for all students
- Tier 2: Targeted support for students who need additional help
- Tier 3: Intensive, individualized intervention

Yet district improvement efforts often focus disproportionately on Tiers 2 and 3. When Tier 1 is weak, intervention spending increases—not because intervention fails, but because prevention never occurred.

The most effective MTSS systems start by strengthening the instruction every student receives every day.

Three Signals Your Tier 1 Instruction Needs Strengthening

1. Curriculum Coverage Exists, but Learning Does Not Stick

Curriculum alignment to standards is necessary, but it is not sufficient. When lessons introduce too much new information at once—without clear modeling, scaffolding, or cumulative practice—students struggle to retain and apply what they learn.

This is not a student capacity issue. It is an instructional design issue.

Effective Tier 1 instruction is explicit and systematic, carefully sequenced to manage

cognitive load and reinforce learning over time. When materials are designed this way, fewer students fall behind and teachers spend less time reteaching foundational skills.

Leadership takeaway:
Evaluate whether core instructional materials are designed to support how students actually learn—not just what they are expected to learn.

2. Literacy Has Advanced, but Math Has Not Kept Pace

Over the past decade, literacy instruction has benefited from focused research, policy attention, and professional learning. As a result, districts have clearer frameworks for what effective reading instruction looks like.

Early numeracy has not received the same level of coordinated focus.

Many educators can articulate structured literacy practices, yet far fewer can describe evidence-based early math instruction—such as building number sense, conceptual understanding, and mathematical reasoning.

National assessment results show that math performance has declined since pre-pandemic levels, particularly in the upper elementary grades. This trend underscores the need for districts to bring the same rigor and intentionality to early math that has transformed literacy.

Leadership takeaway: Strong Tier 1 systems treat literacy and numeracy as equally foundational—and invest accordingly.

3. Assessment Data Identifies Gaps but Does Not Improve Core Instruction

Districts collect extensive benchmark data, but too often that data is used primarily to determine who needs intervention.

Assessment data is most powerful when it informs Tier 1 instruction.

When benchmark results are connected to instructional decisions—such as placement, pacing, and differentiation—teachers can respond earlier and prevent gaps from widening. When they are not, intervention demand grows unnecessarily.

Leadership takeaway:
Ensure assessment systems and instructional materials work together so data leads to instructional action, not just student sorting.

The Cost of Weak Tier 1 Instruction

When Tier 1 instruction is inconsistent or misaligned to research, districts experience predictable consequences:

- More students are pushed into Tier 2 and Tier 3
- Intervention staffing and program costs increase
- Instructional time is consumed by remediation
- Gaps widen over time, requiring more intensive support

By contrast, strong Tier 1 instruction reduces intervention demand, improves efficiency across the system, and allows specialists to focus on students with the greatest needs.

This is not just an instructional issue—it is a fiscal one.

Why Tier 1 Is the Highest-ROI Investment Districts Can Make

Strengthening Tier 1 instruction delivers benefits across the system:

- Fewer students require intervention
- Specialists work more effectively with smaller caseloads
- Teachers spend more time teaching and less time reteaching
- Resources stretch further over time

Most importantly, Tier 1 investment supports equity. Every student benefits from high-quality instruction—not just those identified for additional services.

When prevention is strong, MTSS becomes sustainable.

Moving from Remediation to Prevention

Districts do not need more programs. They need stronger coherence.

Strengthening Tier 1 does not require dismantling existing systems or dramatically increasing spending. It requires clear expectations for evidence-based instruction, alignment between curriculum and assessment, and a commitment to prevention over remediation.

Districts seeking to strengthen their Tier 1 foundation often look for solutions that combine research-based literacy and numeracy instruction with actionable data and progress monitoring. Early learning programs such as Reading Eggs and Mathseeds support this prevention-focused approach—helping districts align instruction, reduce intervention demand, and build MTSS systems that work as intended.

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Play-Based Learning Yields More Joy, Higher Scores At This Elementary School

By Elizabeth Heubeck

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When the doors to Mansfield Elementary School in northeastern Connecticut officially opened to students in the 2023-24 school year, Principal Kate McCoy had a lot to be excited about.

She looked forward to building a new school community for the estimated 550 students coming together from three former area schools that had closed due to aging infrastructures and declining enrollment. And she appreciated how the building's features—abundant natural light, a patio for outdoor learning, a dedicated LEGO room, and the neighboring Mansfield Hollow State Park, whose 250-plus acres allow for easy access to class hikes and other outdoor activities—would support her primary goal as an elementary school leader: to create a culture of joy for students.

The timing was right.

In 2023, Connecticut passed legislation mandating a return to a teaching approach for young learners that has eroded across the country in the wake of more rigorous academic expectations: guided play.

"I believe elementary schools need to be places where we build joy, and play is how we can get there," said McCoy. "Pushing play was part of our dialogue from the get-go."

McCoy's message, and the state's newly implemented legislation, are a part of the growing pushback to the "academization" of kindergarten. Over the past couple decades, educators in the early grades have increasingly introduced literacy and math standards with an eye toward preparing students for the grades, and standardized tests, ahead. Explorative, imaginative play that once dominated early-elementary classrooms has been deemphasized, teachers say.

But while rigorous academic standards in the early grades may be here to stay, how schools best support students in reaching these standards isn't set in stone.

"The academic rigor of kindergarten has changed, but that does not mean that play should be removed," McCoy said. "When children find joy at school, they are more willing to take risks, persevere, and engage in challenging learning."

> **"I believe elementary schools need to be places where we build joy, and play is how we can get there."**
>
> **KATE MCCOY**
> Principal
> Mansfield Elementary School, CT

Connecticut educators pushed for legislation that reintegrates play in early grades

Members of the Connecticut Education Association pushed hard for the 2023 legislation that reinstated play in early-elementary classrooms. To bolster its argument, the association surveyed the state's K-3 teachers and found that the teachers reported dramatic declines in play, coinciding with a rise in direct instruction and test preparation. The survey also noted a significant increase in behavioral problems and more anxiety in the early grades in recent years.

Joslyn DeLancey, who taught elementary school in Connecticut public schools for 15 years before joining the state teachers' union as vice president in 2021, witnessed firsthand such changes sweep through kindergarten programs. The school day went from a half day to a full day. Teachers were told by school leaders to remove from their classrooms blocks, dress-up materials, and other sources of imaginative play.

"Then they really started pushing these forced scripted curriculums and teaching to the test and really just took all of the play out

of the classroom," she said.

That's starting to change. The Constitution State's law, which went into effect July 2024, requires public elementary schools to provide play-based learning for kindergarten and preschool students and permits teachers in grades 1-5 to incorporate play-based learning.

DeLancey continues to support the law's implementation, offering professional development workshops for elementary school educators on play-based learning.

The Mansfield school system has emerged as a key partner in the association's efforts to educate teachers on how to incorporate guided play into the curricula. In the summer of 2024, the district, which serves just under 1,000 students, collaborated with the union to host two days of professional learning on developmentally appropriate guided play aligned to academic standards.

That professional learning continues. "Through ongoing professional development, coaching, and collaboration, play-based learning continues to deepen across our school," McCoy said.

Teachers at Mansfield Elementary report that, in the brief time that they've been encouraged to deliberately weave guided play into academic lessons, they're seeing how it benefits their young students—namely, igniting their innate curiosity and reducing feelings of academic pressure.

Using imaginative, playful lessons to make learning stick

For veteran teachers at Mansfield Elementary like Erika LaBella, the changes couldn't come soon enough.

"What I'm teaching kindergartners now is what I was teaching 1st graders many moons ago," LaBella said. "We were slowly watching ourselves move away from play. Then Kate brought this [new instruction] back to us and said, 'We can incorporate play into our academics,' and that's what we've all been able to do—find a way to have the kids be joyful throughout the whole day, instead of just having one little isolated time to go play."

That joyfulness can extend even to the more mundane lessons, like learning new vocabulary, which historically has involved word lists and rote memorization. Courtney Ramsdell, a kindergarten teacher at Mansfield Elementary, has found a better way to get new vocabulary to stick for her young students.

She starts with a focus wall that relates to a specific lesson. In the fall, for instance, Ramsdell's focus wall centered on a pumpkin patch that doubled as an interactive learning board. The soil for the pumpkin patch required nutrients—a vocabulary word whose meaning made sense to students in the context of growing pumpkins. These nutrients made the soil fertile, another vocabulary word. The students labeled the different parts of the pumpkin patch with their newly acquired vocabulary and added to it throughout the fall.

"It continued to grow so far above and beyond what the actual curriculum required," Ramsdell said.

In Kate Harbec's 2nd grade class at Mansfield Elementary, students in December learned both math principles and vocabulary while building gingerbread people. She first introduced to students the concept of polygons, then, quadrilaterals. She then tested students' knowledge by spreading out dozens of polygons made out of felt and having students form gingerbread people using only the quadrilateral-shaped pieces.

"They had to think about what the attributes of a quadrilateral were. And by the end of 15 minutes, every kid could tell you that a quadrilateral had four sides," Harbec said. "It was just a fun, engaging way for them to apply it right away."

Learning through play takes the pressure away

In most school settings, students learn from a young age that there is a right and a wrong answer. This knowledge can quickly become a source of stress or anxiety.

Students might become fixated with getting the right answer and the best grades. Getting the answer wrong often enough can lead students to lose confidence, become convinced that they're not good at school, and even stop trying altogether. On the contrary, teaching concepts via playful exploration encourages academic inquiry and stamina, Harbec said.

In science, her 2nd graders are learning about matter and properties by building toys.

"Because it's playful, when things fall apart, they're like, 'OK, I can fix it,'" Harbec said. "It's a natural way to work on growth mindset and learning, because they don't feel like they're right or wrong. It's all about the process along the way."

Fixating on getting the "right" answer can derail the learning progress for even very young students. So too can hyperawareness of one's rank within a classroom. Harbec uses games to circumvent this issue as her students strengthen their math skills.

"One group might be playing with cards or dice with higher numbers to make it more challenging for them. The kids are all just thinking they're playing this game. And if you come into the room, you think everybody is doing exactly the same thing, but you actually have groups of kids working at their best level," Harbec said. "It's a natural way to differentiate."

Early reports show strong performance at Mansfield Elementary

Mansfield Elementary teachers consistently report high student engagement, collaboration, oral language, and confidence, said McCoy, the school's principal.

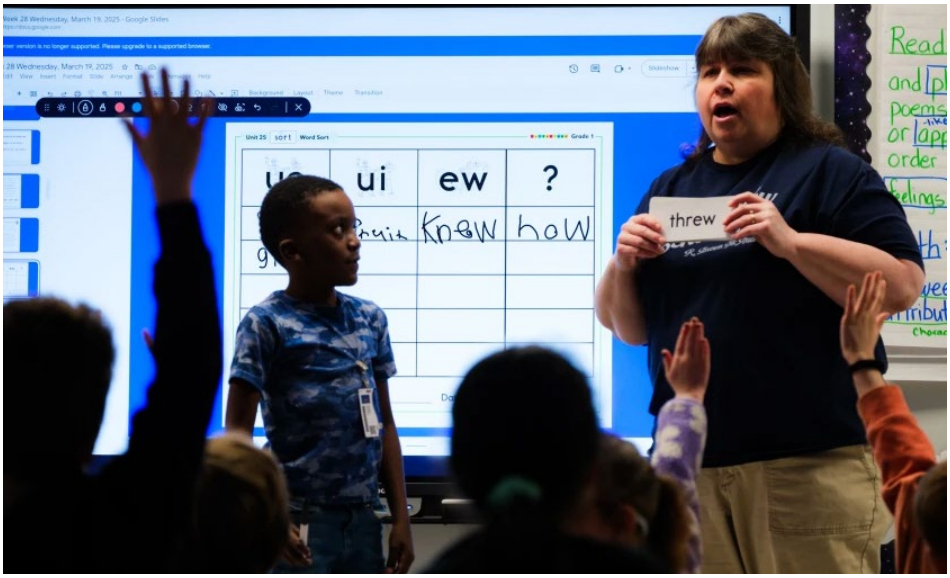
In 2023-24, the school's first full year, Connecticut's School Performance Index (SPI) showed that Mansfield Elementary students outperformed state averages in English/language arts by 10.5 percentage points—74.4% compared with 63.9%. The following year, the school's SPI score in ELA rose to 77.5%, the highest in both the district and the state.

Thirty-two percent of the school's students are eligible for free or reduced lunch, and 10% identify as English learners.

Meanwhile, in 2023-24, the school's math SPI score was 74.4%, compared with the district's overall score of 72.2% and the state's average score of 60.2%. In 2024-25, the school again outperformed the state average, with a math SPI score of 75.5%.

Based on state assessment results, Mansfield Elementary has been recognized as a School of Distinction for the past two years.

"This reinforces that centering joy and play does not mean lowering expectations," McCoy said. "It means creating the conditions where students can do the hard work of learning." ■



Cornell Watson for Education Week

Students at R. Brown McAllister Elementary School use different strategies in phonemic awareness during literacy instruction in Concorn, N.C. Teaching spelling in foundational-skills lessons can improve students' reading, research shows.

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Why Teaching Spelling Can Boost Students' Reading Skills

By Sarah Schwartz

All computers come with spell-checkers and iPhones autocorrect their users' texts. But despite those everyday features, formal spelling instruction still pays off, the findings of a new study suggest.

This recent meta-analysis examined 59 studies of spelling interventions for students who had, or were at risk for, learning disabilities across grades K-9. The lessons had a small but significant effect on children's spelling—but also boosted their reading abilities.

"Spelling, especially when you think about early literacy, isn't just about accuracy all the time," said Brennan Chandler, an assistant professor of dyslexia at Georgia State University. "It's really about how we can help kids crack the code of written language, and build that mental dictionary that makes word-reading automatic."

The findings add to an existing body of research demonstrating that teaching spelling can make students stronger readers. And they also point to what kind of spelling instruction might deliver the greatest returns.

"We really looked under the hood," said Chandler. "We wanted to find, what are the active ingredients that make spelling approaches really matter?"

States' new reading laws often don't reference spelling

It's an especially salient question now, as more than 25 states have passed laws or implemented new policies mandating evidence-based reading instruction in the past five years alone.

Still, most of these laws don't explicitly mention spelling—or writing—alongside other components of literacy, such as vocabulary or fluency, according to a 2023 analysis by the Shanker Institute.

Other research has found that teachers of upper elementary students with reading disabilities only spent about 2% of instructional time on spelling.

Learning to read words and learning to spell words are two sides of the same coin, researchers say.

When teachers teach phonics, they are showing students how letters represent sounds. Students use their knowledge of those letter-sound connections to sound out words in reading. But they also use that knowledge to write words, representing the words' pronunciation through the letters they put down on the page.

Spelling well also frees up brain space for children while they're writing, said Chandler. "Spelling takes up so much cognitive capacity," he said.

If students don't know how to spell a tricky word that they might use regularly, like "said," they have to pause and try to figure it out every time—potentially interrupting their thoughts about what to write next or how to make their argument, Chandler said.

Focus on phonics, spelling rules, morphology: What spelling lessons can look like

In the meta-analysis, Chandler and his colleagues examined different categories of spelling lessons to identify which interventions would best meet different instructional goals.

Some interventions focused on letter-sound knowledge, which the researchers called "phonemic" interventions. Others asked students to memorize the spellings of whole words. Still others explicitly taught spelling rules, or focused on morphology—teaching students to spell word parts, like common prefixes and suffixes that also carry clues to a word's meaning. Some interventions combined multiple approaches.

Lessons aimed at having students memorize whole words had the largest positive effect, but only on students' ability to spell the specific words they memorized. Some of the studies showed evidence that the effect didn't transfer to spelling ability in general.

Interventions that used multiple approaches—teaching letter-sound connections and spelling rules, for example—also had small positive effects on spelling ability.

Lessons focused solely on letter-sound connections, though, were the only type that had a positive effect on students' word-reading.

What might this kind of spelling instruction look like in a kindergarten or 1st grade classroom? It can be integrated into how teachers teach phonemic awareness—the identification and manipulation of spoken sounds—or into phonics, said Chandler.

For example, a teacher might ask students to break down a word orally, stretching it out to hear the different sounds. Then the teacher could link letters to each sound in the word, and ask students to practice writing the word.

"We don't want kids to just memorize words," Chandler said. "We want them to unlock the pattern." ■

Published April 02, 2025

Want to Improve Early Reading Comprehension? Start With Sentence Structure

By Sarah D. Sparks

"Avoid the passive voice" is a favorite maxim of writing teachers. But for young learners, exposure to passive construction—and other more complex sentences in spoken language—may help children develop reading comprehension.

A new study on early language finds that preschool and kindergarten-aged children who have been exposed to a wider array of spoken language had better comprehension of the passive voice and other complex sentences, and they were quicker to correct misunderstandings, than peers with smaller receptive language.

The study, which appeared in the Royal Society's Science journal, was conducted by Malathi Thothathiri, an associate professor of speech and hearing science at George Washington University, and two research partners.

Thothathiri and her colleagues asked 4- and 5-year-olds who had not yet developed fluent reading skills to listen to a series of active and passively constructed sentences ("the boy kicked the ball" versus "the ball was kicked by the boy," for example), and point to a picture that described the action.

In a separate task, the researchers used eye-tracking technology to measure how quickly students identified which of the two pictures described a spoken sentence.

"The thing about sentence processing is that it happens moment to moment," Thothathiri said. "Our brain's predicting what's going to come next, on the fly. So as we're hearing 'the ball is ...,' the brain's already interpreting that, and that's where the trip-up comes in. That's normal—even adults do that—but adults have mature brains and executive functions, so they can correct that mistake, whereas younger children sometimes actually interpret it incorrectly."

In the moment, she found, children with higher executive function skills—like working memory (the capacity to hold and remember information for short-term problem-solving) and planning—were quicker to correct their initial misunderstandings of a passive sentence.

E+ / Getty

> **"Teachers need to recognize the frequency of exposure to different sentence structures matters."**
>
> **MALATHI THOTHATHIRI**
> Associate professor of speech and hearing science
> George Washington University

But just improving students' executive skills didn't improve their comprehension over time. Rather, comprehension was linked to what Thothathiri called a "virtuous spiral" of exposing them to broader and more diverse language and sentence structure, while also developing children's memory and other executive skills.

"Teachers need to recognize the frequency of exposure to different sentence structures matters," Thothathiri said. "We don't go around speaking in passive voice or in complicated sentences that often, but in books, you often find these more complicated sentence structures. And the brain is a statistical learning machine—the more that it's exposed to something, the less difficulty people have with that thing." ■

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Allison Shelley/All4Ed

A 1st grade teacher speaks with a student about an assignment at Capital City Public Charter School in the District of Columbia.

Published April 15, 2024

Want to Improve Reading Proficiency? Talk to Kids More

By Elizabeth Heubeck

Ask an early educator to explain the science of reading, and phonics will likely headline the response. But phonics, and its emphasis on word recognition, covers only part of the reading-proficiency puzzle. Oral language skills are equally important.

Yet, too often, oral language skills are not getting the emphasis they deserve in early education classrooms, say literacy experts.

Sonia Cabell hopes to help teachers change that.

Cabell, an associate professor in the School of Teacher Education and the Florida Center for Reading Research at Florida State University, believes there's a straightforward way for teachers to improve the oral language skills of young learners, starting as early as preschool: Engage in meaningful one-on-one conversations with students throughout the school day. They don't have to be long or complicated, Cabell explained. In fact, she and fellow educational researcher Tricia A. Zucker co-authored a book that provides a simple framework for time-strapped teachers to have these interactions with students that take as little as a minute but can have long-lasting, positive consequences.

Cabell recently spoke to Education Week about this approach for boosting students' oral language skills. The interview has been edited for length and clarity.

Why should teachers focus on improving students' oral language skills?

Unlike reading, which is a secondary skill, oral language is a biological primary skill of humans. So the idea that we're hard-wired to learn oral language does raise the question: Why do teachers have to focus on oral language development? It really is about gaining exposure to the more formal language used by teachers in the classroom—language to which children need exposure in order to read and write proficiently.

How early should teachers focus on oral language skills?

Some of my own research has shown that the conversations in preschool classrooms relate to children's vocabulary growth and that the language teachers use, and the complexity of that language, matters.

But, as you point out in your book, Strive-for-Five Conversations, the back-and-forth of conversations is critical, right?

That's right. The benefits of going back-and-forth and having multiturn conversations, some call them "serve and return," is well-documented in the literature. The idea is that you're building on what students say and then providing them with another opportunity to be an active participant in the conversation.

In these multi-turn conversations, what's the ideal number of turns?

The idea is that you try to have five conversational turns with a student: I say something, you say something, and so on. It doesn't take very much time. Each of these conversations takes about one minute of instructional time, but they accomplish a lot.

How does the 'five-turn conversation' compare with a typical teacher-student exchange?

What tends to happen [in typical interactions] is that I, as the teacher, ask a question, the student says something in return, and then the teacher stops the conversation by saying something like: "Good job!" Most teacher-student conversations stop at that third turn.

How can teachers extend these conversations?

Based on whether the student responded correctly, partially correctly, or incorrectly, you think about how you as the teacher might scaffold them. For instance, if the student responded correctly, you might scaffold them upward, providing them with an additional challenging question. If they answered incorrectly, you could scaffold them downward by helping them to come to a more correct answer. You might do that by reducing the choices they have or you might ask them to fill in the blank, pushing them to give you another turn. It's that piece of sticking with that child that seems to not happen very frequently.

Are these conversations designed to be one-on-one?

Yes, but they can take place in a whole group as well. For example, in book reading, you ask guiding questions, telling students before you begin reading: "I want you to think about this."

During this exercise, teachers are encouraged to use [Popsicle] sticks—every student will be thinking about the question because they all know their name could be called. Then you read the book and come back to that earlier [guided] question. You pick one Popsicle stick out of the group and take at least five conversational turns with the student you call on. You can then ask that same guiding question to three other kids.

Do many teachers balk at all the classroom time these conversations could take?

We're not saying that every conversation has to be a five-turn conversation. But we are saying: Deliberately have these conversations with each child every day.

Which students benefit most from these five-turn conversations?

Research has shown that it's those students who have lower-language skills or who are English learners or who are shy and who won't come to the teacher and say, "I want to talk to you about something"—they typically have fewer conversations with their teacher in class. They aren't getting the same practice with oral language skills because they aren't asking for it. The five-turn conversation is a way for teachers to make sure the learning is equitable.

What is your message to teachers who think this approach is not worth their time?

We don't want teachers to see this strategy as rigid. But we do want to encourage teachers to be more deliberate about their conversations with students. We're asking teachers to make a marginal shift in what they're already doing, which is having conversations with kids all day long. We also see this as a way for teachers to give students a language boost without actually saying: "Now, we're going to do an oral language lesson." ■

Published February 09, 2024

How Much Time Should Teachers Spend on a Foundational Reading Skill? Research Offers Clues

By Sarah Schwartz

A reading block in an elementary school classroom can feel like a carefully choreographed 120-minute dance.

Time is a finite resource, and it often falls to teachers to make decisions about how much instructional time to devote to the many interrelated components of reading. What's the dosage of each that will ensure kids get it?

A new study offers insight into that question for one key component of early reading development: phonemic awareness. It finds, in essence, that you can have too much of a good thing.

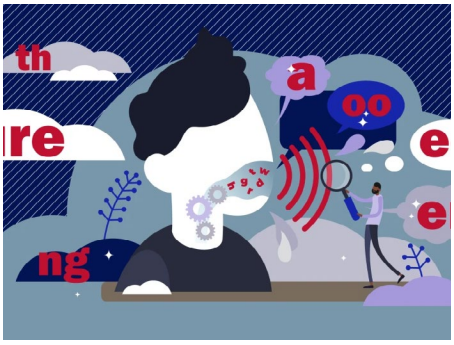
Phonemic awareness is the ability to identify and manipulate the individual sounds in words—to blend the sounds /c/, /a/, and /t/, into the word cat, for instance. It serves as a kind of springboard for reading and spelling by giving young children knowledge they can map onto written letters, aiding them in sounding out words.

Instruction in this skill is important. But at some point, students master this ability, and don't need further teaching. The new study, from a team at Texas A&M University, aimed to figure out where that point might be.

The researchers examined 16 experimental and quasi-experimental studies on phonemic awareness instruction, all conducted in small groups or one-on-one settings with students in grades pre-K-1. They found that the more time teachers spent, the better students became at the skill compared to a control group—but only up to a certain point: 10.2 hours total. Programs that spent longer on phonemic awareness instruction after that point showed diminishing returns.

Practice with this skill is crucial, the study concludes, but also that an "overemphasis" on phonemic awareness may not be beneficial, said Florina Erbeli, an assistant professor of educational psychology at Texas A&M and the lead author on the paper.

"We have to remember that phonemic awareness is not the goal of the whole instruction. The goal is to teach the students to read," she said. "Phonemic awareness instruction is just one of the steps that will bring us to kids starting to read and spell. ...



iStock/Getty Images + Education Week

After a while, you wouldn't expect a typical child to go on forever and ever needing this."

Research doesn't provide a 'magic number'

As the "science of reading" movement has spread across the country, more schools have taken up phonemic awareness instruction as part of their early literacy approach. A 2022 EdWeek Research Center survey found that about a quarter of preK-2 and special education teachers use Heggerty, an early literacy curriculum provider that offers popular daily phonemic awareness lessons.

The study is one of the first to provide research-based guidance on dosage for phonemic awareness. It comes at a time when questions about how to structure classroom time loom large in the science of reading movement.

While many states have passed new legislation mandating that schools use evidence-based practice, these laws and accompanying state guidance don't often come with a roadmap for structuring an effective literacy block. The lack of concrete instructions can leave some teachers feeling frustrated—wanting to change their practice, but not knowing exactly how. Some educators have offered examples of what their lessons look like.

But there's not one singular research-based schedule, in part because dosage is difficult to study, said Matt Burns, a professor of special education at the University of Florida who studies reading interventions. Burns was not involved with the Texas A&M study.

The same amount of cumulative time can have different effects depending on how it's divided up, he said. For example, 30 minutes once a week of practice with a skill might lead to different outcomes than 10 minutes three times a week. Many studies don't report this kind of detailed information about dosage. And then students' needs vary—some may need more practice and repetitions, and others fewer, Burns said.

Such differences should be considered in interpreting the study, Erbeli said.

"10.2 hours is not some magic number," she added. "We say in the paper that this number does not tell us anything about a particular class, a particular individual." Teachers should plan phonemic awareness instruction based on the needs of students in front of them, she said.

Still, this study can provide a useful guidepost, Burns said. "If you're spending more than [10.2 hours], take a look at your practice. If you're spending much less than that, take a look at your practice."

Phonemic awareness: With or without letters?

The study also touches on a distinction that has become a source of debate in the reading field: Whether it's better to teach phonemic awareness orally, or alongside written letters.

Many teachers use materials that are designed for oral practice only. The teacher will say a word, and then ask students to segment the sounds within it, for example. But some researchers argue that having students look at the letters in a word as they practice this skill can reinforce their understanding—and some studies have shown that students' reading and spelling outcomes are better when phonemic awareness instruction includes letters.

In the Texas A&M study, the researchers found that phonemic awareness instruction with letters led to bigger returns over a longer period of time—the intervention groups continued to show better phonemic awareness skills than control groups after 16 hours of instruction over the course of the program. (These programs also spanned grades pre-K-1.)

That may be because phonemic awareness and decoding ability are reciprocal skills, Erbeli said. Seeing how sounds are connected to letters could help students manipulate sounds more precisely. ■

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Jaclyn Borowski/Education Week

Jacqueline Chaney works with her 2nd grade students during a small-group reading activity at New Town Elementary School in Owings Mills, Md.

Published January 15, 2024

How This Teacher Sparks a Love Of Reading for Pleasure

By Elizabeth Heubeck

Owings Mills, Md. -

Jackie Chaney conducts her 2nd grade class with the finesse of a seasoned conductor: gaining her students' attention at will, facilitating smooth transitions, and creating an atmosphere that promotes wiggling around in one's space for a moment before plunging into deep and focused concentration.

Much of Chaney's expertise comes from sheer experience: She's been presiding over elementary school classrooms for well over a decade. But Chaney, who teaches at New Town Elementary, a majority-minority school here, acknowledges the increasing difficulty of getting students to engage in activities that require sustained focus, such as independent reading.

The allure of electronic devices, with their dynamic and fast-moving screens that allow children to enjoy passive entertainment with very little effort, pose stiff competition to activities like reading books. The pandemic tipped the balance further; many children were isolated and bored during remote schooling and the shuttering of extracurriculars, and screen time skyrocketed.

New data strongly hints at the consequences: More than 80 percent of the nearly 300 educators surveyed reported a decrease in reading stamina among students in grade 3 to 8 since 2019, according to an EdWeek Research Center survey conducted in November and December of 2023.

The impact of the pandemic notwithstanding, statistics show that interest in reading wanes throughout childhood, beginning at about age 9, a phenomenon that the educational publishing company Scholastic Corporation has dubbed "Decline by Nine."

There are plenty of reasons to push reading for pleasure before that. Engaging in the pursuit from a very young age has been linked to an array of benefits. A 2023 study that analyzed the impact of the activity on more than 10,000 young adolescents found improved cognitive performance, language development, academic achievement, and even reduced symptoms of stress and behavioral problems compared to peers who weren't routine pleasure readers. And it can spark students' curiosity and improve their motivation, which a body of research connects to academic success.

These factors lend a sense of urgency to the work of teachers like Chaney as they attempt to hook their students on reading for pleasure while they can.

Education Week sought to get a firsthand account of how an experienced teacher like Chaney makes pleasure reading a viable, accessible, and attractive option for students. She shared her favorite strategies, from common-sense tips to special in-class activities during which reading is central to the experience.

The interview has been edited for length and clarity.

Have you seen a dwindling interest in pleasure reading among students over the years?

When I first started teaching, we were able to have reading logs and assign reading homework that was signed and supported by parents/guardians at home. I have definitely seen a change over the years in regard to reading engagement.

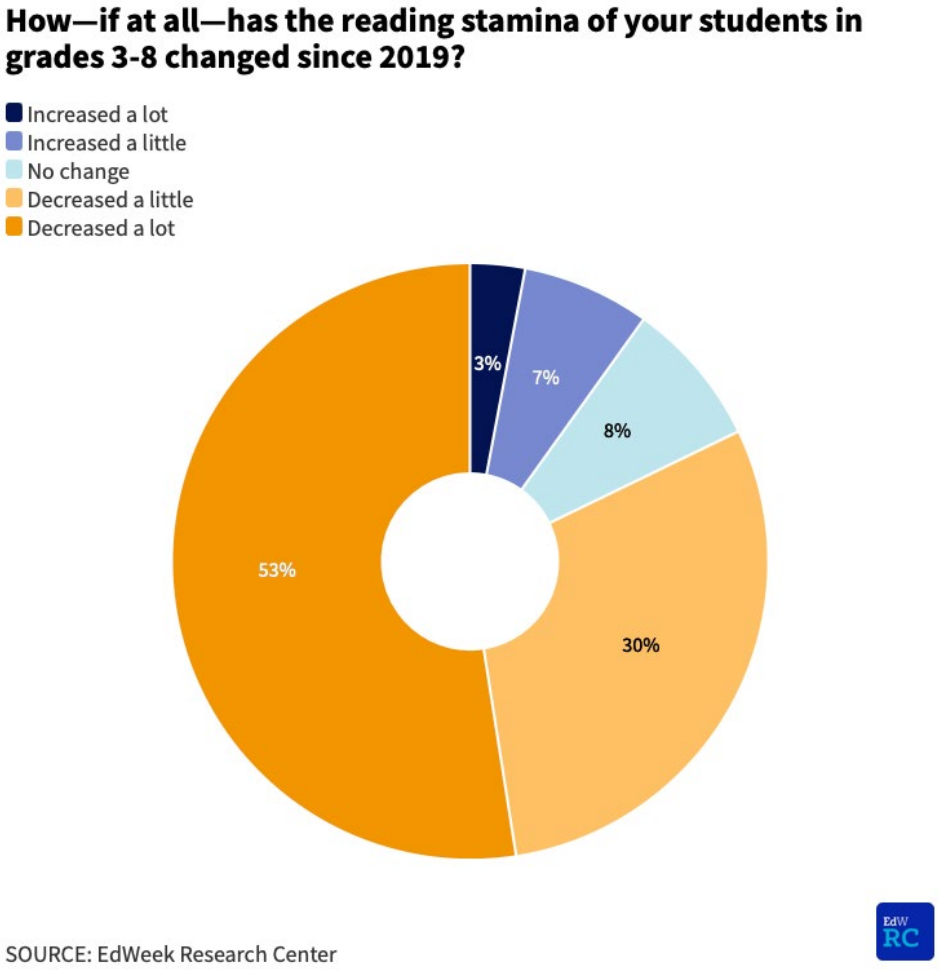
How important is student choice in reading? What book series are popular right now?

Student interest has a huge impact on the desire to read; including books in a class or schoolwide library that are popular and relevant will greatly increase reading interest and stamina. Dog Man, Amulet, Dork Diaries, and the Diary of a Wimpy Kid series are all super popular. When students are able to select books that they want to read, that is half the battle in actually getting them to read. And, like with everything, the more students read and have good reading structures, the better they become.

How do you find the time in a packed school day to make pleasure reading a priority?

I do a lot to encourage easy access to choice reading. For example, each student has a book box. Students are able to select three to five books of their choice each week from the school library or my classroom library, and switch them out as needed. I also purchase each child a book box from Lakeshore [an educational materials company].

I house them on shelves in our classroom reading area. They have opportunities to read after morning work or during reading rotations. Students can get a comfy pillow or read with a buddy on a floor spot. I find that when I



allow students to read together, I definitely get more excitement and willingness to read.

What are some other ways that you make pleasure reading feel special?

We do something called "Flashlight Friday" during the cold or rainy months. Students get their book boxes, I grab my book, and we turn out all the lights in the classroom. I pull the blinds and we read by flashlight. The kids love this! Sometimes we put on a fireplace on YouTube and read by the fire. They love when I grab my book and read with them.

Students often read in partners but occasionally a small trio will read together. I often buy multiple copies of books for this reason. It warms my heart when a group creates their own reading book club.

How do you make time during instructional periods to fit in reading?

During language-arts class, I divide students into small groups that include novel studies. I run these like book clubs. We may meet for lunch or what I call "breakfast bunch" to read and discuss the book I've chosen for the group to read, share opinions, and work on our speaking and listening skills.

Currently, we are reading Stuart Little. Of course, the majority of my kiddos responded that they had seen the movie. I explained that the book and movie may be different, so read carefully. I incorporate questioning and modeling of good reading behaviors to increase their reading stamina and willingness to read.

Lunch bunches are a particular favorite of students. I bring a small reading group once or twice a week to eat with me in the classroom. We usually read a chapter, talk about story events, share reading responses and projects, and really just develop fellowship around reading. You would think that students would perhaps be hesitant to work during lunch, but they love it!

Breakfast bunches have begun to be even more popular. I grab Dunkin' Donuts and some juice boxes, and the first 30 minutes of the day we meet for breakfast while the other students begin morning routines. Each group has a turn so there are no issues with it being fair. I always feel like I need more time to fit in reading, so this is something that I can do to get more reading time and start students' day off positively. ■

Sonia Pulido for Education Week

OPINON

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How to Help Students See The Relevance of Math

By Larry Ferlazzo

Today's post continues a series highlighting ways teachers can help students see how math and science are relevant to their lives.

Listen!

Emily Burrell has taught high school mathematics for 23 years. For the last 10 years, she taught at Fairfax County's South Lakes High School in Reston, Va.:

Although students may be doubtful, math is relevant to their lives. Teachers can help students understand this by posing questions in real-world contexts or by engaging in project-based learning. Math is also relevant as a general practice that builds problem-solving ability.

But more importantly, students must learn that they are relevant to mathematics. Students' ideas about math are important in building their own agency and for supporting their peers' understanding. Many students believe that their math teacher is the holder of all knowledge and the student's job is to memorize and repeat. They often don't know the value of their own thoughts until a teacher asks for them.

One of my favorite questions to ask is, "Was math invented or discovered?" This question has both depth and accessibility and has led to enthusiastic debates. Routine questions to ask include, "What patterns do you see?" and "What would be a reasonable estimate of this answer?" and "How is this problem related to one you know how to solve?" In general, ask questions that are open-ended and pose problems that can be solved with multiple methods.

Students know their thoughts are valuable when people listen. Teachers are often in a hurry to help as many students as possible in the limited time we have with them. But stopping to listen carefully to a student's question, asking about what approaches they tried and what ideas they have next can build a student's confidence in their ability to tackle problems without teacher help. Patient listening will pay off with students who understand the importance of their ideas.

Students also need to share ideas with their peers. This might not happen naturally if they don't feel confident in their understanding or don't know their classmates well. Teachers can create structures for students to share their ideas with routines like "sage and scribe." They can assign expertise with structures like "jigsaw" so every student has something important to contribute.

When you think about what is important to you, often you have found a way to make your own impact in this area. Math is no different. Thoughtful questioning and structures for discourse allow students to make meaningful contributions to the class and to their peers' understanding. Students become relevant to math when they are empowered as independent mathematical thinkers.

'Giving Students a Purpose'

Deborah Peart Crayton is the founder and CEO of My Mathematical Mind and speaks on a variety of topics related to math identity, elementary math content and instruction, and literacy connections to mathematics. She is the author of Born a Mather: Leveraging Literacy for Mathematical Understanding*:*

Elementary students are excited to solve problems and become the hero in someone else's story. As teachers, we can offer this gift by giving students a purpose for "doing the math." One way to do this is to show students how math can help them advocate for themselves and others.

When teaching 3rd grade students in Atlanta, our grade was assigned the last lunch block. Just before us, the 4th and 5th grade students had lunch. Each Thursday, there was a limited supply of chocolate milks, which by our lunchtime meant very few to go around. Week after week, my students complained about not getting chocolate milk, so I challenged them to find a solution. They immediately turned to mathematics under my guidance and with a few "wonderings" to probe their thinking.

- I wonder how many chocolate milks are ordered each week.
- I wonder if all of the students like chocolate milk.
- I wonder how many chocolate milks students are allowed to drink.
- I wonder how we could find out how much chocolate milk would be enough.
- I wonder who could help us solve this dilemma.

Even though it was not a formal assignment, my students were fully invested. They interviewed the lunchroom manager who was responsible for ordering milk. They created a survey for students to find out how many actually like chocolate milk.

They worked together to determine how many chocolate milk cartons should be ordered, with a few extra for good measure, and took their case to the principal. They had graphs, charts, and accurate calculations to demonstrate the problem and their proposed solution. Their diligence was rewarded with a solution that involved ordering more chocolate milk and limiting the number of cartons each student could have. These 3rd graders recognized math as a sense-making superpower.

When designing or modifying tasks, we must ensure the contexts are relevant to the students. Even when following a curriculum, we must feel empowered to adapt the contexts to match our students' lives. When scenarios are a mismatch for the students, we have a responsibility to keep the math intact while adjusting the context to make it more relatable and meaningful.

When I taught in New York City, we had a survey and graphing task about how the students get to school. The choices were: ride in a car, take the school bus, or walk. I knew my students also traveled by city bus, taxi, or train, so this survey didn't match our context. It was an easy fix.

Students can help us figure out what is relevant to them, but we need to ask. Student-generated tasks can be included for practice, homework, or group work allowing students to see themselves as creators of mathematics and not doers only.

Another way to include student voice is to launch math with warm-up routines and community builders that invite student discourse. As we get to know our students, it becomes easier to ensure that students see themselves represented in the contexts of our math tasks and as assets to our math communities. We want all students to know they are "mathers."

As teachers, we often get the question, "When will I ever use this?" If we help students view mathematics as something that can help them make sense of the world, they are more willing to hone their skills.

It is important for them to recognize that practice doesn't always look like application. You may never need this exact task in life, but you are learning valuable skills in the process of finding solutions. We can turn to the Standards for Mathematical Practice for support with the language we can use with students to help them embrace the habits they learn from working hard in math class.

Below is a student-friendly version of the standards designed for students to have language to describe the skills, habits of mind, and practices they are learning that will serve them not only in math class but in life. Students need to know that as they become deep mathematical thinkers, they are also becoming problem-solvers who can solve all types of problems for themselves and others.

'Think Long Term'

Ralph Pantozzi is a Presidential Awardee in Mathematics Teaching and has been a classroom teacher and supervisor in New Jersey schools for 32 years:

First, always be honest about why you are teaching a particular topic. Often, the reason is simply to prepare for a future topic. Students will appreciate your candor.

Many educators teach topics that have limited (immediate) relevance, so think long term. Highlight short stories of real people who use the ideas of math and science in their lives and careers. Find out about your students' interest, concerns, and hobbies. Allocate space on your classroom walls for images of people and objects from the local community and the larger world that have connections to math and science.

Resources like Profiles of Professional Mathematicians and Computational Scientists and Mathematical Moments are also good places to start, but think also about everyday objects like toasters or the newest game show where contestants are trying to strategize their way to victory. A classroom that is connected to the larger world is one where students will always see relevance.

Just as essential: Leave time in your classroom for students to ask questions about topics of interest. Every once in a while, have the "do now" be "ask me a question you've been pondering," letting the students know that their questions need not be restricted to ideas they might think of as having a mathematical connection.

When you read these questions, you learn things about your students and have material for your own investigation. You may not know an immediate through line to math and science, but you will often be able to find one—or you can ask The Math Doctors!

In students' day-to-day work, another way to show that math and science has meaning is to continually note that mathematical and scientific words are used in other areas of our lives: power, function, degree, origin, term, hypothesis, translate, expand, factor ... the list is nearly endless.

When humans chose these words for specialized use, they were thinking of the world beyond math or attempting to make an analogy or metaphor. Math often seems separate from other human endeavors, but at its basis, it is our attempt to understand our world and our experience in it. Let the Online Etymology Dictionary be your guide.

Lastly, relevance is often found simply in what inspires curiosity. A garbage can and a lampshade can be the same shape. The occurrence of floods is much like rolling dice. You only need a mirror half your height to see the full length of your body. the age of geologic structures, and the sound of a bouncing ball all have something in common. Be on the lookout for everyday phenomena that can be used to raise questions about the world we inhabit. A classroom full of interesting questions is one where students often find relevance all on their own.

'Cooperative Learning'

Sarah Nichols is a national board-certified teacher and a Utah Teacher Fellow in Salt Lake City:

One of my favorite teaching assignments as a special education teacher is co-teaching in a secondary math classroom. As much as I love math, it's pretty hard to convince teenagers that they are going to spend a lot of their adult life graphing lines using slope intercept form or that imaginary numbers are going to be critical to their future happiness.

Secondary students can sniff out half-hearted rationalizations and lame attempts at making connections. It may be fun for me to graph a system of equations to determine when spending $40 on a reusable popcorn bucket at the movie theater would pay off, but despite the widespread appeal of popcorn and personal budgets, it doesn't seem to be as fun for the students. To an extent, I'm jealous of elementary teachers whose lessons translate into more common real-life applications.

The best way I have seen to make math relevant to students' lives is to emphasize the real, math-adjacent skills that they can practice and acquire through hard work in math class.

First, and most important, is the ability to persevere through a challenging problem. Instead of giving up at the first sign of frustration, they can hone their skills of struggling through, trying a new tack, and checking to see if an answer is correct. This is especially important in the post-COVID era. Too many students were able to avoid the discomfort of struggling through problems and disengaged significantly during online schooling. It's easy to make a case for the relevance of being able to stick with a problem until a solution is found

or accessing past knowledge and previously used strategies to apply to a new problem.

In addition, students in math classes that utilize cooperative learning or discourse-promoting strategies have the benefit of practicing communication and cooperation, two skills that are crucial in almost every work context and in current or future relationships. Math teachers can help students learn more than just math—they can teach and support the social skills needed to be successful in life, such as explaining thoughts clearly, listening to others, adding on to others' ideas, and challenging thinking errors.

When teachers link math standards to esoteric or less-than-relatable future applications, they lose the opportunity to show students what they are really learning— concrete, relevant skills that successful adults need in their relationships, workplaces, and homes.

Thanks to Emily, Deborah, Ralph, and Sarah for contributing their thoughts! ■

Larry Ferlazzo is a former award-winning high school English and social studies teacher of more than two decades. He is currently a volunteer tutor to English-learner newcomers at a local school and to youth in juvenile hall.

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Don't Blame 'Science of Reading' for Low Scores

Efforts to raise achievement and get kids reading are part of a bigger puzzle

By Angélica Infante-Green

Vanessa Solis/Education Week + iStock/Getty

With the recent release of the National Assessment of Educational Progress results, some may be tempted to make sweeping curricular changes or bemoan the state of education after seeing a decline in math and reading scores. As a state leader, practitioner, and mother, I think this would be a mistake with potentially damaging consequences.

Rather than make rash shifts in education policy, we should be careful and remain clear-eyed. Did anyone else notice that many states that have been working to implement the science of reading the longest are improving faster than the nation, which saw a 2-point decline in reading in 4th and 8th grades?

In Rhode Island, our students didn't drop in reading scores on NAEP. We have held steady in literacy over the last two years, and we saw an increase in 4th grade math this year, all of which are consistent with our state assessments. While we'd have liked to see score gains in literacy, we believe they're coming—with a strategic, consistent approach.

Five years ago, on the cusp of the pandemic, we shifted to the "science of reading." This approach emphasizes explicitly teaching phonics, or the relationship between letters and sounds, and building students' background knowledge and vocabulary to support reading comprehension.

We've spent time since then adopting evidence-based classroom resources and extensively training our teachers. Now, we're focusing on helping educators incorporate these new materials and their training into the classroom. This is the steady and unglamorous work of policy implementation; but I have no doubt our scores will climb as a result. As I walk into classrooms now, I'm seeing teachers skillfully using high-quality materials and students deeply engaged in reading, writing, and speaking and listening. Early progress is evident in many Rhode Island districts as seen in walkthroughs of classrooms and formative and interim assessment data.

Just look at the progress of states like Louisiana and Mississippi, which are among the leaders in the science of reading and adoption of high-quality instructional materials.

Louisiana is the only state that has surpassed its pre-pandemic reading results on the Nation's Report Card in 4th grade. It's been a leader for more than a decade in putting well reviewed curriculum in schools. In Mississippi, which passed one of the most widely regarded science of reading laws in 2013, 4th and 8th graders are now working near where they were in 2019 before the pandemic upended education and sent achievement plummeting nationwide.

We need to come together around what works in education, and the science of reading has broad bipartisan support. However, there are some with special interests and those stuck in the past—such as the creators of outdated materials—who don't believe state education leaders should play a role in guiding and supporting good instruction but believe it should be left up to individual teachers to cobble together curriculum and choose what to use and how. That makes no sense, and even led some parents in Massachusetts to file a lawsuit against reading curricula creators and publishers, alleging that the materials were not backed by science and used deceptive and fraudulent marketing to sell their programs.

In addition to being a state education chief and a teacher trained in the science of reading, I'm a mom to two kids. Like those parents, I've always wanted research-based practices, the best curriculum, and high expectations for my kids. Who wouldn't?

I spend as much time as possible visiting classrooms in my state, and what I'm seeing is exciting. During literacy lessons today, students are engaged in rich conversations or writing assignments centered around literature they're reading. Everyone has access to grade-level material.

The last thing teachers want is to see this progress disrupted. They're tired of having policies arrive at the schoolhouse door, last a little while, and then get set aside for something else new and shiny. We need to adopt policies wisely using sound evidence and then put resources and time into making the implementation process work on the ground.

It's also important to remember that the 4th graders with low NAEP scores were in kindergarten when the pandemic hit. Many learned to read online. That was a challenge—one that's probably reflected in these scores.

Clearly, though, we have more work to do.

Teacher-preparation programs must ensure aspiring teachers are getting the training to excel on the job. In Rhode Island, we require teaching candidates to receive training in the science of reading as part of their educator preparation programs and to be in

the classroom. Other states should also consider this since evidence suggests there are gaps in what teaching candidates learn at schools of education with many aspiring educators not learning all the necessary components of how to teach reading.

Another problem that deserves attention is the sharp decline in independent reading. The most recent Long-Term-Trend report, another NAEP assessment, found just 14 percent of 13-year-olds read for fun on their own. I think about my own childhood, spent reading with a flashlight at bedtime, and feel sad today's youth doesn't feel that same pull toward books.

We need to do everything we can to bring engaging literacy-rich programs to our schools, after-school programs, and summer activities. In some Rhode Island schools and other schools in the country, there are vending machines stocked with books. I love hearing the clink of coins in the machine and seeing kids excitedly picking out a book.

We also have to address chronic absenteeism: if kids aren't in school, they cannot learn. While survey data on the latest Nation's Report Card show it's improving, we're still not back to pre-pandemic levels. Rhode Island state assessment data from 2024 showed a roughly 25 percentage-point achievement gap between elementary and secondary students who are chronically absent and their peers who attend school regularly. Policies we've seen help include improving attendance tracking systems, engaging meaningfully with parents through phone calls and home visits, and ensuring families have services and supports they need, like mental and physical health care.

There is no one single policy that alone will improve student learning. Efforts to raise achievement and get kids reading are all part of a bigger puzzle that, when put together, gives young people the greatest shot at success in and outside the classroom.

Let's analyze the latest NAEP results, learn from them, and make smart, evidence-based decisions that drive our country forward. If we do that, we'll surely see positive outcomes on the next Nation's Report Card and in students' lives. ■

Angélica Infante-Green is the Rhode Island Commissioner of Elementary and Secondary Education. She previously served as the deputy commissioner of the New York State Education Department's Office of Instructional Support. She also serves on the National Assessment Governing Board, which sets policy for The Nation's Report Card.

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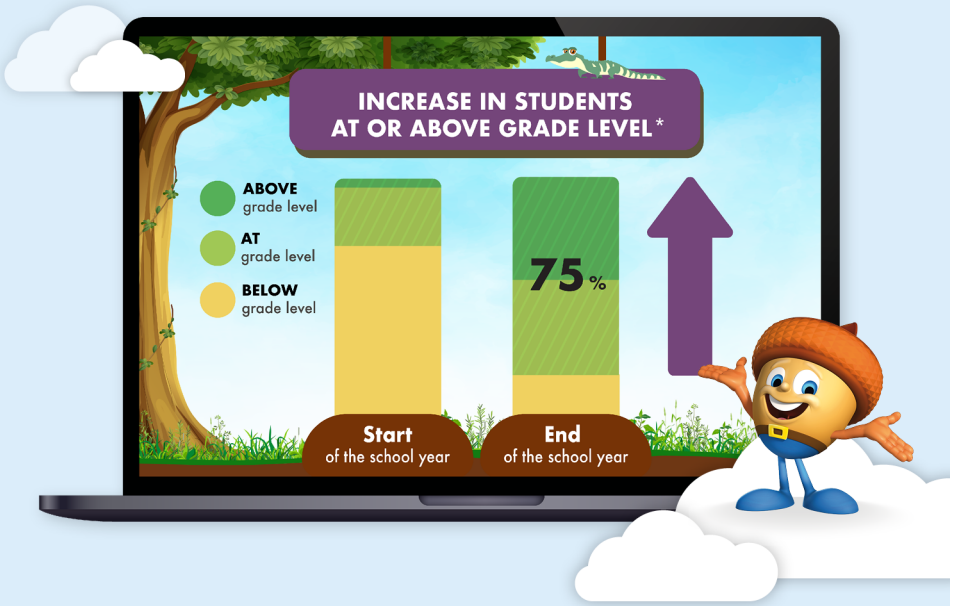

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OPINION

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How to Help Students With Their Writing. 4 Educators Share Their Secrets

By Larry Ferlazzo

Teaching students to write is no easy feat, and it's a topic that has often been discussed on this blog.

It's also a challenge that can't have too *much* discussion!

Today, four educators share their most effective writing lessons.

'Three Practices That Create Confident Writers'

Penny Kittle teaches first-year writers at Plymouth State University in New Hampshire. She was a teacher and literacy coach in public schools for 34 years and is the author of nine books, including Micro Mentor Texts *(Scholastic). She is the founder and president of the Book Love Foundation, which annually grants classroom libraries to teachers throughout North America:*

I write almost every day. Like anything I want to do well, I practice. Today, I wrote about the wild dancing, joyful energy, and precious time I spent with my daughter at a Taylor Swift concert. Then I circled back to notes on Larry's question about teaching writers. I wrote badly, trying to find a through line. I followed detours and crossed out bad ideas. I stopped to think. I tried again. I lost faith in my words. I will get there, I told myself. I trust my process.

I haven't always written this easily or this much. I wouldn't say I'm a "natural" writer because I don't believe they exist. Writing is work. When I entered college, I received a C-minus on my first paper. I was stunned. I had never worked at writing: I was a "first drafter," an "only drafter." And truthfully, I didn't know how or what to practice. I was assigned writing in high school and I completed it. I rarely received feedback. I didn't get better. I didn't learn to think like a writer; I thought like a student.

I've now spent 40 years studying writing and teaching writers in kindergarten, elementary school, middle school, and high school, as well as teachers earning graduate degrees. Despite their age, writers in school share one remarkably similar trait: a lack of confidence. Confidence is a brilliant and fiery light; it draws your eyes, your heart, and your mind. But in fact, it is as rare as the Northern Lights. I feel its absence every fall in my composition courses.

We can change that.

Confidence blooms in classrooms focused on the growth of writers.

This happens in classrooms where the teacher relies less on lessons and more on a handful of practices. Unfortunately, though, in most classrooms, a heap of time is spent directing students to practice "writing-like" activities: restrictive templates for assignments, with detailed criteria focused on rules. Those activities handcuff writers. If you tell me what to do and how to do it, I will focus on either completing the task or avoiding it. That kind of writing work doesn't require much thinking; it is merely labor.

Practice creating, on the other hand, is harder, but it is how we develop the important ability to let our ideas come and then shaping them into cohesive arguments, stories, poems, and observations. We have misunderstood the power of writing to create thinking. Likewise, we have misunderstood the limitations of narrow tasks. So, here are my best instructional practices that lead to confidence and growth in writers.

1. Writing Notebooks and Daily Revision. Writers need time to write. Think of it as a habit we begin to engage in with little effort, like serving a tennis ball from the baseline or dribbling a basketball or sewing buttonholes. Writers need daily time to whirl words, to spin ideas, to follow images that blink inside them as they move their pen across the page. In my classroom, writing time most often follows engagement with a poem.

Likewise, writers need guidance in rereading their first drafts of messy thinking. I've seen teachers open their notebooks and invite students to watch them shape sentences. They demonstrate how small revisions increase clarity and rhythm. Their students watch them find a focus and maintain it. Teachers show the effort and the joy of writing well.

Here's an example: We listen to a beautiful poem such as "Montauk" by Sarah Kay, her tribute to growing up. Students write freely from lines or images that spring to them as they listen. I write in my notebook as students write in theirs for 4-5 minutes. Then I read my entry aloud, circling subjects and detours (I don't know why I wrote so much about my dog, but maybe I have more to say about this ...). I model how to find a focus. I invite students to do the same.

2. Writers Study Writing. Writers imitate structures, approaches, and ways of reaching readers. They read like writers to find possibilities: Look what the writer did here and here. A template essay can be an effective tool to write for a test, but thankfully, that is a very small and insignificant part of the whole of writing for any of us. Real writing grows from studying the work of other writers. We study sentences, passages, essays, and articles to understand how they work, as we create our own.

3. Writers Have Conversations as They Work. When writers practice the skills and embrace the challenges of writing in community, it expands possibilities. Every line read

from a notebook carries the mark of a particular writer: the passion, the voice, the experiences, and the vulnerability of each individual. That kind of sharing drives process talk (How did you think to write about that? Who do you imagine you are speaking to?), which showcases the endless variation in writers and leads to "writerly thinking." It shifts conversations from "right and wrong" to "how and why."

Long ago, at a local elementary school, in a workshop for teachers, I watched Don Graves list on the chalkboard subjects he was considering writing about. He read over his list and chose one. From there, he wrote several sentences, talking aloud about the decisions he was making as a writer. Then he turned to accept and answer questions.

"Why do this?" someone asked.

"Because you are the most important writer in the room," Don said. "You are showing students why anyone would write when they don't have to." He paused, then added, "If not you, who?"

Developing 'Student Voice'

A former independent school English teacher and administrator, Stephanie Farley is a writer and educational consultant working with teachers and schools on issues of curriculum, assessment, instruction, SEL, and building relationships. Her book, Joyful Learning: Tools to Infuse Your 6-12 Classroom with Meaning, Relevance, and Fun *is available from Routledge Eye on Education:*

Teaching writing is my favorite part of being a teacher. It's incredibly fun to talk about books with kids, but for me, it's even more fun to witness students' skills and confidence grow as they figure out how to use written language to communicate what they mean.

A lesson I used to like doing was in "voice." My 8th graders had a hard time understanding what I meant when I asked them to consider "voice" in their writing. The best illustration I came up with was playing Taylor Swift's song "Blank Space" for students. Some students groaned while others clapped. (Doesn't this always happen when we play music for students? There's no song that makes everyone happy!) But when they settled down, I encouraged them to listen to the style: the arrangement, her voice as she sang, the dominant instruments.

Then, I played a cover of "Blank Space" by Ryan Adams. Eyes rolled as the song unfurled through the speakers, but again I reminded students to listen to the arrangement, voice, and instruments. After about 60 seconds of the Adams version, heads nodded in understanding. When the music ended and I asked students to explain voice to me, they said it's "making something your own ... like your own style." Yes!

The next step was applying this new understanding to their own writing. Students selected a favorite sentence from the books they were reading, then tried to write it in their own voice. We did this a few times, until everyone had competently translated Kwame Alexander into "Rosa-style" or Kelly Link into "Michael-style." Finally, when it was time for students to write their own longer works—stories, personal essays, or narratives—they intentionally used the words and sentence patterns they had identified as their own voice.

I'm happy to report this method worked! In fact, it was highly effective. Students' papers were more idiosyncratic, nuanced, and creative. The only change to this lesson I'd make now is trying to find a more zeitgeist-y song with the hope that the groans at the beginning die down a little faster.

Teaching ELLs

Irina McGrath, Ph.D., is an assistant principal at Newcomer Academy in the Jefferson County school district in Kentucky and the president of KYTESOL. She is also an adjunct professor at the University of Louisville, Indiana University Southeast, and Bellarmine University. She is a co-creator of the ELL2.0 site that offers free resources for teachers of English learners:

Reflecting on my experience of teaching writing to English learners, I have come to realize that writing can be daunting, especially when students are asked to write in English, a language they are learning to master. The most successful writing lessons I have taught were those that transformed the process into an enjoyable experience, fostering a sense of accomplishment and pride in my students.

To achieve this, I prioritized the establishment of a supportive learning environment. At the beginning of each school year, I set norms that emphasized the importance of writing for everyone, including myself as their teacher. I encouraged students to write in English and their native language and I wrote alongside my English learners to demonstrate that writing is a journey that requires hard work and dedication, regardless of age or previous writing experiences. By witnessing my own struggles, my students felt encouraged to persevere.

My English learners understood that errors were expected and that they were valuable opportunities for growth and improvement. This created a comfortable atmosphere where students felt more confident taking risks and experimenting with their writing. Rather than being discouraged by mistakes, they viewed them as steppingstones toward progress.

In my most effective writing lessons, I provided scaffolds such as sentence stems, sentence frames, and word banks. I also encouraged my students to use translation tools to help generate ideas on paper. These scaffolds empowered English learners to independently tackle more challenging writing assignments and nurtured their confidence in completing writing tasks. During writers' circles, we discussed the hard work invested in each writing piece, shared our work, and celebrated each other's success.

Furthermore, my most successful writing lessons integrated reading and writing. I taught my students to read like writers and utilized mentor texts to emulate the craft of established authors, which they could later apply to their own writing. Mentor texts, such as picture books, short stories, or articles, helped my students observe how professional writers use dialogue, sentence structure, and descriptive language to enhance their pieces.

Instead of overwhelming students with information, I broke down writing into meaningful segments and taught through mini lessons. For example, we analyzed the beginnings of various stories to examine story leads. Then, collaboratively, my students and I created several leads together. When they were ready, I encouraged them to craft their own leads and select the most appropriate one for their writing piece.

Ultimately, my most effective lessons were those in which I witnessed the joyful smiles on my English learners' faces as they engaged with pages filled with written or typed words. It is during those moments that I knew my writers were creating and genuinely enjoying their work.

To access a self-checklist that students and EL teachers can use when teaching or creating a writing piece in English, you can visit the infographic at bit.ly/ABC_of_Writing.

'Model Texts'

Anastasia M. Martinez is an English-language-development and AVID Excel teacher in Pittsburg, Calif.:

As a second-language learner, writing in English had not always been my suit. It was not

until graduate school that I immersed myself in a vast array of journals, articles, and other academic works, which ultimately helped me find my academic voice and develop my writing style. Now, working as an ESL teacher with a diverse group of middle school multilingual learners, I always provide a model text relevant to a topic or prompt we are exploring.

When students have a model text, it gives them a starting point for their own writing and presents writing as less scary, where they get stuck on the first sentence and do not know how to start.

At the start of the lesson, prior to using a model text, I create a "do now" activity that guides my students' attention to the topic and creates a relevant context for the text. After students share their ideas with a partner and then the class, we transition to our lesson objectives, and I introduce the model text. We first use prereading strategies to analyze the text, and students share what they notice based on the title, images, and a number of paragraphs. Then, depending on the students' proficiency level, I read the text to the class, or students read the text as partners, thinking about what the text was mostly about.

After students read and share their ideas with partners and then the whole class, we transition to deconstructing the text. These multiple reengagements with the text help students become more familiar with it, as well as help students build reading fluency.

When deconstructing the model text, I guide my students through each paragraph and sentence. During that time, students orally share their ideas determining the meaning of specific paragraphs or sentences, which we later annotate in the model text using different colored highlighters or pens. Color coding helps visually guide students through similar parts of the model text. For instance, if we highlight evidence in paragraph 2 in one color, we also highlight evidence in the same color in the following paragraph. It helps students see the similarities between the paragraphs and discover the skeleton of the writing. Additionally, color coding helps students during their writing process and revision. Students can check if they used all parts of the writing based on the colors.

Furthermore, one of the essential pieces during deconstructing model texts that I draw my students' attention to is transition words and "big words," or academic vocabulary. We usually box them in the text, and I question students about why the author used a particular word in the text. Later, when students do their own writing, they can integrate new vocabulary and transition words, which enhances their vocabulary and language skills.

As the next step, I invite students to co-create a similar piece of writing with a partner or independently using our model text as their guide. Later, our model text serves as a checklist for individual and partner revisions, which students could use to give each other feedback.

Model texts are an essential part of the writing process in any content-area class. As educators, we should embrace the importance of model texts, as they provide a solid foundation upon which students can develop their unique writing skills, tone, and voice.

Thanks to Penny, Stephanie, Irina, and Anastasia for contributing their thoughts! ■

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