Marshall Memo 947

A Weekly Round-up of Important Ideas and Research in K-12 Education
August 1, 2022

In This Issue:

Quotes of the Week

"Any time we give students the opportunity to not just analyze the world as it is, but use their knowledge to grapple with how the world *ought* to be, we explicitly permit them to not just be problem solvers, but to embrace their identity as problem *finders*."

Colin Seale in "Finding the Funk: 3 Ways to Add Culturally Responsive Critical Thinking to Your Lessons" in *Cult of Pedagogy*, July 24, 2022

"In a typical lesson, you decide, often quickly. Then you decide, decide, and decide again. You are a batter facing a hundred pitches in a row."

Doug Lemov (see below, page 2)

"We aren't just struggling to help students learn to concentrate on what's important, we are struggling against a massive and pervasive technology that acts on our students – and ourselves – to erode that critical capacity in almost every minute of the day."

Doug Lemov (see below, page 4)

"Schools are increasingly one of the last places that can aspire to insulate young people from constant distraction, digital overstimulation, and task switching. Providing steady doses of screen- and distraction-free time characterized by sustained meditative reflection – pencil, paper, book – is the greatest gift we can give to young people."

Doug Lemov (see below, page 5)

"Teaching well is the most effective way to show a student that you care and to establish a relationship with them in the first place."

Doug Lemov (see below, page 5)

"A relationship is a tool that helps students understand how to connect to content."

Adeyemi Stembridge (quoted below, page 6)

"Teachers who work with students who grow up in poverty should be especially careful to avoid a potential assumption that growing up with limited financial resources implies growing up impoverished in other ways… Please do not presume that they need an advocate more than they need someone to teach them chemistry."

Doug Lemov (see below, page 8)

Doug Lemov on Mental Models for the Most Effective Instruction

In the introduction to the latest edition of *Teach Like a Champion*, Doug Lemov suggests five mental models for thinking about teaching. Why do we need these? Because teaching is so complex and demanding, he says: "In a typical lesson, you decide, often quickly. Then you decide, decide, and decide again. You are a batter facing a hundred pitches in a row… What do you need to decide quickly, reliably, and well, while thinking about other things and often under a bit of pressure in the form of, say, twenty-nine restless students, twenty-five minutes' worth of work left to get done, and a ticking clock to remind you that you have fifteen minutes left in the class period?"

Other fields, including sports, use mental models. Lemov describes an experienced soccer coach watching a game from the stands while eating a sandwich. In mid-bite, he suddenly notices that one of the backs is out of position. An opposing player spots this, takes advantage of the error, and his team scores a goal. The coach saw it because he had a mental model of how the four backs should be arrayed on defense – shaped a little like a saucer – and he knew that a slight variation would make the team vulnerable to attack.

Another reason mental models are important is the well-documented ability of people to look right at something important – the classic experiment of a person in a gorilla suit walking across a basketball court – and not see it. Mental models help with this, says Lemov, because "the best way to see well is to know what *should* occur. Your mental model guides what you look for. The more we understand, the more we see. And when we don't understand what we're seeing, this too influences our looking."

Lemov suggests five big-picture principles to sharpen the way we look at day-to-day instruction and help us make adjustments when things are not going as well as they should:

First, teaching involves managing working memory and building long-term memory. "The power of working memory is prodigious," says Lemov, referring to our ability to bring thoughts to mind for active consideration. "It allowed humankind to discover penicillin, create the musical *Hamilton*, and conceptualize String Theory." But as powerful as working memory is, it's also limited – the human brain can pay attention to only a small amount of information at a time – and that poses a perennial challenge for teachers and learners.

What's more, if working memory is overloaded, our brain must choose what to focus on – and it doesn't always make the choice we'd prefer. If you are driving a car and talking on your cellphone about what you need to pick up at the supermarket, you are much more likely to get into an accident making a left turn across oncoming traffic. This has nothing to do with

whether your phone is hands-free; it happens because devoting working memory to a grocery list degrades a competing working memory task: judging the speed of oncoming vehicles.

"You perceive less from the environment when your working memory is taxed, and more when it is free," says Lemov, which is why, when students' working memory is overloaded, there's frustration, inattention, boredom, acting out, and less learning. "So it's critical to attend to and manage the amount of new information young brains work with," he says. "We want them constantly engaged and interested but not overloaded with more than they can manage." Novice learners in any field especially need structured, step-by-step guidance.

The teacher's working memory is another beneficiary of a well-thought-out lesson: good preparation frees mental bandwidth to pay attention and be nimble and responsive to students as the lesson unfolds.

Of course the goal is to shift skills, facts, and knowledge from students' "mental sketch pad" to long-term memory – a process that might be seen as the ultimate aim of education. "And long-term memory is almost unlimited," says Lemov. "If our knowledge is encoded well and we are able to retrieve it, we can draw on it to inform our thinking and make connections." Knowing math facts, and being able to read fluently, for example, allow us to solve problems and engage in higher-order thinking, which depend on being able to quickly make connections to what's encoded in long-term memory. The key is helping students store and organize facts and knowledge and constantly form new neural connections, making it possible for them to engage in rapid retrieval and higher-level thinking.

A final point about working memory is what is known as the forgetting curve – the distressing rate at which the average person forgets what is "learned." Lemov summarizes the findings from cognitive science:

- As soon as we hear or see new information and stop thinking about it, we begin to forget it.
- A few hours later, we remember only a small fraction.
- There's variation in the forgetting curve by type of information, how closely we are paying attention, prior knowledge, the learning environment, and more.
- Each time we retrieve recently-learned facts or knowledge from memory, the rate of forgetting is somewhat reduced.
- The effectiveness of retrieval depends on how and when it's done – for example, an exit ticket retrieves something that was learned in a lesson and measures students' retention, but the knowledge or skill might not be in their long-term memory, so it could be gone by the test a few days later.
- One study found that if students interact with new information three times, there's an 80 percent probability it will be embedded in long-term memory.

How can teachers build these findings into daily classroom practice? Lemov suggests trying to keep students' working memory relatively free so they can focus on new content; rolling it out in small, bite-sized chunks; getting all students actively and frequently thinking about what they're learning; doing lots of checks for understanding; cold-calling so every student needs to

think through answers (even kids who aren't called on); having everyone write responses to all-class questions before a discussion; and strategically spacing retrieval practice.

Second, habits accelerate learning. Anything that's become a memorized habit – brushing our teeth, loading the dishwasher – frees up working memory and allows us to put the remaining capacity to work on other mental tasks. "Making common, everyday activities familiar enough that we can do them without having to think about them," says Lemov, "makes it easier for us to do them – and therefore more likely that we will – and means we can free our minds up to think more deeply while doing them… Your actions would happen more slowly and require more willpower and working memory (or might not happen at all) if they were not a habit. A familiar routine allows you to save your willpower for something else" – and researchers have found that willpower is a finite resource that can be used up in a short period of time.

Familiar habits have another benefit for our minds: free from having to deal with the details of a task, they can roam and engage in wide-ranging thinking. "Before you know it," says Lemov, "you are thinking about where to put the couch so the living room makes sense or what the best question is to unlock last night's reading for your students." Remarkably, one study found that up to 45 percent of our daily behaviors are automatic. That's good; it means our brains are saving energy and better able to swing into action when needed and engage in deeper cognition.

In classrooms, familiar routines help students get right into important substance. Lemov describes a teacher asking students to get out their reading response journals and answer a question about the book the class is reading. Within three minutes, every student is hard at work; the logistics of writing are a familiar routine, as is the habit of diving into deep thinking about the content. He compares this to a teacher down the hall who takes a more spontaneous approach, inviting students to write on any scrap of paper and then having to answer several questions about format and content before most but not all students finally get to work. In that situation, momentum and focus were squandered, says Lemov.

Finally, he describes a high-achieving school in one of London's poorest neighborhoods where every day in the cafeteria students are offered a chance to stand and express gratitude for someone who has helped them. Scores of students raise their hands and one by one thank their teachers, the lunchroom staff, their mothers, and fellow students until teachers have to close down the activity and take students back to class. Lemov saw other evidence of thoughtfulness around the school: a student giving a pencil to a classmate who didn't have one, kids helping pick up books dropped in the hall, other small acts of kindness. Clearly this school has instilled habits of gratitude and respect that have become part of the culture. "Where we direct our students' attention can be a self-fulfilling prophecy," says Lemov. "Narrating the good, the hard work, and the productivity around them helps them see it when it is present and to learn more from observing it."

Third, what students attend to is what they will learn. In the study mentioned above (showing there's an 80 percent chance that students will remember something they've heard three times) there was an important proviso: students had to be paying attention. Inconsistent

attention, says Lemov, is a significant variable in classrooms: "Half-focused or fleetingly focused learners master things more slowly and with more difficulty." This is especially true for students with ADHD, and the techniques successful teachers use are helpful in all classrooms. "Attending to attention," he says, "– building habits of sustaining focus – is one of the most important things that teachers can do."

That aspect of teaching has become vastly more challenging, Lemov continues, with the arrival of smartphones and social media: "We aren't just struggling to help students learn to concentrate on what's important, we are struggling against a massive and pervasive technology that acts on our students – and ourselves – to erode that critical capacity in almost every minute of the day." Nowadays most adults switch tasks every two and a half minutes, kids even more frequently. Human brains are neuroplastic, and they're being rewired for constant distraction and superficial attention.

"Schools are increasingly one of the last places that can aspire to insulate young people from constant distraction, digital overstimulation, and task switching," says Lemov. "Providing steady doses of screen- and distraction-free time characterized by sustained meditative reflection – pencil, paper, book – is the greatest gift we can give to young people… Pencil-to-paper writing, taking notes by hand, reading in hard copy books – there is ample research to support each of these activities as far more beneficial than the same task done on a screen."

That means less focus on trying to use technology with every lesson and carving out time for students to read without interruption, write for sustained periods of time, have focused discussions with turn-taking routines, engage in high-quality turn-and-talks, and embrace the concept of "flow" – being so involved in an activity that time seems to stand still.

Fourth, motivation is social. Humans evolved as social animals, says Lemov, and it's up to educators to proactively create social norms in classrooms that support learning and positive engagement. Some examples: having students make eye contact with classmates when they speak; classmates frequently engrossed in reading and writing, setting an example for their peers; and, of course the teacher providing well-organized lessons and a rigorous curriculum that honors students' time.

Lemov adds that classroom culture and students' sense of belonging don't come only from the teacher. "By joining with peers in actions and feeling honored, supported, and respected by them," he says, "students will do many of the things that some educators presume they will do only if the teacher inspires them. Again, relationships matter – but the peer-to-peer cultures we build through the norms students perceive are at least as important."

Fifth, relationship building is at the heart of good teaching. Lemov gently pushes back on the often-quoted aphorism, *Students won't care what you say until they know that you care*. Relationships matter and students should know we care about them, he says. "But the assertion that no teaching can happen until a relationship exists is inaccurate, in part because teaching well is the most effective way to show a student that you care and to establish a relationship with them in the first place… A teacher who pushes students to work hard, to write an essay they are truly proud of, a teacher who does not have to shout at students for work to

get done, a teacher who, by teaching well, builds a student's interest in and then love for a subject, builds relationships."

Good teacher-student relationships start with building trust for a safe, calm, ordered environment where the adult can be relied on to be competent, humane, dependable, and predictable in action and character (this draws on Tom Bennett's recent writing). "Trust for a teacher," says Lemov, "is in part an affirmation of their competence and diligence in building the right environment." This includes, for example, the teacher immediately dealing with a situation where some students subtly mock the way a classmate speaks.

Some educators believe relationships are built by chatting after class about favorite shows or other non-school-related subjects, sharing inspirational stories from the teacher's life, showing up at a dance recital, "doing crazy things," or engaging in informal counseling. Those can be okay, says Lemov, but he has two cautions: first, some students may be put off by what they regard as overly familiar behavior; second, these teacher actions "can distract you from the job at hand, teaching well, which is the primary tool by which teachers build relationships with students… We can at times fall prey to wanting too much to be needed or, worse, wanting to assume that our students lack something that only we can provide."

Lemov quotes Adeyemi Stembridge: "A relationship is a tool that helps students understand how to connect to content."

Teachers can show students they like and care about them in simple ways: smiling, knowing their names and how to pronounce them, making family connections. "But students knowing that you care about them does not mean that you are friends," says Lemov. "Part of caring about young people will almost assuredly include setting limits or pushing them to work harder than they otherwise might. You should be as warm as you can and also expect to be strict when needed."

Lemov distinguishes between *supplementary* relationships – connections with certain students about their lives outside the classroom – and *core* relationships – positive, mutually respectful interactions in the instructional space that boost student learning and growth. He salutes teachers who are able to make a positive difference for students with a successful supplementary relationship. "But it is a trap to presume that supplementary relationships are a requirement of success," he says, "when it is core relationships that do the work. Seeking the former too ardently can detract from the latter."

Lemov quotes Dan Cotton on how students should feel in a core teacher-student relationship: *safe, successful, and known*:

Safe: the teacher provides an environment where students don't have to worry about being bullied or mocked, will be respected and appreciated, and feel okay about taking intellectual risks. It's not enough for the teacher to smile and compliment a student's contribution to a discussion if it's met by snickers and eye-rolls from classmates. "Successful relationships require teachers to make use of the authority vested in them," says Lemov, "to build a culture that ensures students feel safe and supported by the *community*. It is not just your own actions you must shape to create the conditions under which students grow and thrive. Students see this clearly."

Successful: This derives from the teacher's overall proficiency at the core tasks of teaching, which together cause students to do well, know they're doing well, and feel trust and appreciation in the teacher.

Known: Saying students' names the way they prefer them to be pronounced, checking in if they arrive to class early (*Everything go OK on the homework for you?*), occasionally cold-calling a student to show you are thinking about their experience in class (*Were you convinced by Santiago's argument?*) – these are basics. Some teachers like to work students' interests into class assignments, but more important, says Lemov, is knowing their work and giving them specific encouragement as you walk around the classroom (*Don't rush; your last paper was good because you took your time*). What students crave and deserve is knowing what they are capable of, teachers caring about their progress, and being seen as individuals.

Lemov adds a final note: "Teachers who work with students who grow up in poverty should be especially careful to avoid a potential assumption that growing up with limited financial resources implies growing up impoverished in other ways… Please do not presume that they need an advocate more than they need someone to teach them chemistry. What young people need most reliably is an opportunity to learn and grow under the guidance of someone who cares about their progress in doing so. This is nonnegotiable."

Of course, some students do need extra support, says Lemov – counseling, a confidant, a mentor – and they come from every socioeconomic level. His key point: that is not the teacher's primary job; making a referral may be the best choice.

"Five Themes: Mental Models for Purposeful Instruction" by Doug Lemov in *Teach Like a Champion 3.0: 63 Techniques That Put Students on the Path to College*, pp. 1-35 (Jossey-Bass, 2021, third edition)

Back to page one

If you have feedback or suggestions,
please e-mail kim.marshall48@gmail.com

About the Marshall Memo

Mission and focus:

This weekly memo is designed to keep principals, teachers, superintendents, and other educators very well-informed on current research and effective practices in K-12 education. Kim Marshall, drawing on 52 years' experience as a teacher, principal, central office administrator, writer, and consultant, lightens the load of busy educators by serving as their "designated reader."

To produce the Marshall Memo, Kim subscribes to 60 carefully-chosen publications (see list to the right), sifts through more than 150 articles each week, and selects 8-10 that have the greatest potential to improve teaching, leadership, and learning. He then writes a brief summary of each article, pulls out several striking quotes, provides e-links to full articles when available, and e-mails the Memo to subscribers every Monday evening (with occasional breaks; there are 50 issues a year). Every week there's a podcast and HTML version as well.

Subscriptions:

Individual subscriptions are $50 for a year. Rates decline steeply for multiple readers within the same organization. See the website for these rates and how to pay by check, credit card, or purchase order.

Website:

If you go to http://www.marshallmemo.com you will find detailed information on:

- How to subscribe or renew
- A detailed rationale for the Marshall Memo
- Publications (with a count of articles from each)
- Article selection criteria
- Topics (with a running count of articles)
- Headlines for all issues
- Reader opinions
- About Kim Marshall (bio, writings, consulting)
- A free sample issue

Subscribers have access to the Members' Area of the website, which has:

- The current issue (in Word and PDF)
- All back issues (Word and PDF) and podcasts
- An easily searchable archive of all articles so far
- The "classic" articles from all 18+ years

Core list of publications covered

Those read this week are underlined.

All Things PLC
American Educational Research Journal
American Educator
American Journal of Education
American School Board Journal
AMLE Magazine
ASCA School Counselor
ASCD Express
Cult of Pedagogy
District Management Journal
Ed. Magazine
Education Digest
Education Gadfly
Education Next
Education Week
Educational Evaluation and Policy Analysis
Educational Horizons
Educational Leadership
Educational Researcher
Edutopia
Elementary School Journal
English Journal
Exceptional Children
Harvard Business Review
Harvard Educational Review
Independent School
Journal of Adolescent and Adult Literacy
Journal of Education for Students Placed At Risk (JESPAR)
Kappa Delta Pi Record
Knowledge Quest
Language Arts
Learning for Justice (formerly Teaching Tolerance)
Literacy Today (formerly Reading Today)
Mathematics Teacher: Learning & Teaching PK-12
Middle School Journal
Peabody Journal of Education
Phi Delta Kappan
Principal
Principal Leadership
Psychology Today
Reading Research Quarterly
Rethinking Schools
Review of Educational Research
School Administrator
School Library Journal
Social Education
Social Studies and the Young Learner
Teachers College Record
Teaching Exceptional Children
The Atlantic
The Chronicle of Higher Education
The Journal of the Learning Sciences
The Language Educator
The Learning Professional (formerly Journal of Staff Development)
The New York Times
The New Yorker
The Reading Teacher
Theory Into Practice
Time
Urban Education