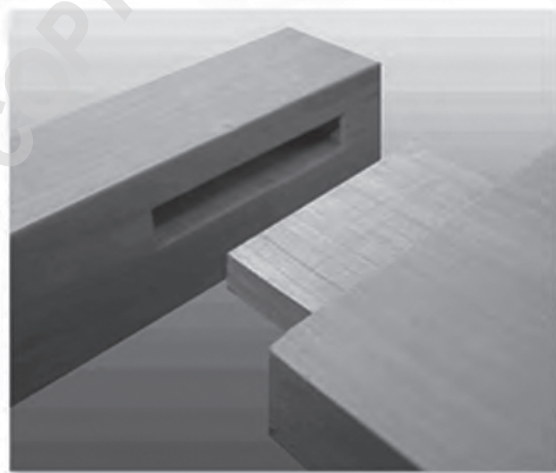


## Five Themes: Mental Models and Purposeful Execution

For carpenters, attaching two pieces of wood at right angles has for centuries been a complex challenge, especially if they have not wanted any nails or screws to show—or if such hardware was not available. Over time, though, woodworkers gradually surmounted this challenge through a technique called *mortise and tenon*. Refined over centuries, the method involves narrowing a section of one piece of wood (a tenon) and wedging it into a gap cut in another (a mortise) and ensures that joints can be made snug and sturdy, even at 90 degrees, without hardware.



Within the mortise and tenon technique, however, a wide range of adaptations are required to overcome different challenges. For a dining room table, the joint must be trim, elegant, and all-but-invisible. The joints for the beams of a barn must be massively strong but designed for quick assembly while they are held aloft. For a ramp, the joint may need to be removable. Thus there are stub mortises, through mortises, and wedged mortises; tusked tenons, pegged tenons, and biscuit tenons.

For carpenters, terminology memorializes the insights of a thousand fellow craftsmen, just as it empowers an individual facing a challenge to more clearly consider the solutions available and engage other carpenters in discussing them with precision.

It's the same, of course, for teachers—or at least this book is an effort to make it that way. Want to engage more students more intentionally in the work of thinking? Try a *Cold Call*—that is, calling on students regardless of whether they've volunteered, and doing so with warmth and genuine interest in their answers—"inclusively," as I like to describe it. Even so, a wide range of adaptations are possible with the *Cold Call*: asking the question before stating the name of the student you are calling on can cause other students to answer the question in anticipation of possibly being called on themselves. Breaking apart a large question into smaller ones can involve more students in answering. *Cold Calling* a second student to respond to the first answer can help socialize pupils to listen carefully to one another. We can call those things *timing the name*, *unbundling*, and *follow-on*.<sup>1</sup> To name the details of a technique and its adaptations leaves a trail of bread crumbs that you can use to refine its use.

But technique and the ability to describe it are not enough. We execute, many of us, nearly a thousand lessons a year—some we've designed ourselves and some in which we bring someone else's blueprint to fruition. We do this with thirty seventh graders on a Tuesday morning. And then again with thirty different seventh graders that afternoon, at which point the second group will surely remind us that we never teach the same lesson twice. Expertise—making the plan come out right for each class—means solving for a steady stream of variables and contexts. Your lesson plan assumed that students would understand *juxtaposition*, but they don't. You thought students would eagerly offer myriad thoughts about the chapter, but the first class weighed in tepidly and only one student raised her hand in the second.

And so a teacher, even one ready with a box of tools she has mastered, makes decisions not only about which tool to use, but how. A dearth of hands? You could *Cold Call*, but you could also *Turn and Talk*, or use a quick low-stakes writing prompt—a *Stop and Jot*. Your tone could be whimsical: "Usually I can't keep you guys from a conversation about *The Giver*. Has something terrible happened to the Kardashians and I'm the last to know?"<sup>2</sup> You could go philosophical: "Yes, it's a hard question. Who will be brave enough to answer it?" You could be blunt: "I need to see more hands." You could say nothing.

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—a comparison I will return to in a moment, but first it's worth asking: 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?

Cognitive science would tell that having a strong mental model is critical. In this case that means having a clear conception of what the elements of a successful lesson should look like. This too, benefits from intentional language to frame the principles reliably.

## MENTAL MODELS

One evening a few years ago I watched a soccer match with a coach named Iain Munro who had played professionally for nearly twenty years in the UK and then coached for twenty more. At one point during the match he was having a bite to eat, and I was in the middle of asking him a question. Suddenly he looked up and interjected: "The right back is out of position."

"Sorry?" I said, wondering which team's right back, and whether he was talking about the game unfolding in the stadium far below or something more abstract and metaphorical.

"He's come too far towards the center and cannot see his man," Iain said. He gestured with his sandwich to point this out to me. As he did so an opposition player noticed the same thing. He drove a pass to a teammate on the dead run in the right back's blind spot. Moments later it was 1-0.

We'd been watching the game for half an hour in a relaxed way when suddenly, one player among twenty-two was out of position for a few seconds, and Iain had seen it instantly, from eighty yards away, while chatting and eating a sandwich. A sort of alarm had gone off. You could see it in his body language: He knew it meant trouble.

How had he done that? The key was his knowledge of what things were *supposed* to look like. "The back four have a proper shape," he said. "Together they should look a bit like a saucer. The saucer should tilt a bit in response to where the ball is," he said, gesturing with his hands.

What Iain was describing was a *mental model*, a framework that people use to understand complex environments. His mind was continually comparing what was in front of him to this mental model and it helped him to notice quickly things that were important or out of place.

Teachers too have mental models. You briefly turn your back on your class but can distinguish without looking the normal and natural chatter of students busily on-task from

talking that “sounds wrong.” You might not be able to explain how it’s wrong, but hearing it, you know distraction is afoot. You have a mental model of classroom noise.

Research tells us that mental models are critical to effective decision making in almost every field of expertise but especially in fields where people are asked to make a great many decisions quickly while they are focused on multiple things.

In his research on teacher expertise, David Berliner<sup>3</sup> showed video of classrooms to novice and expert teachers. Novices struggled to make sense of what they saw. “They often reported contradictory observations and appeared confused about what they were observing,” Berliner writes. Like Iain, however, experts often appeared to be observing passively until something looked out of place. This triggered a reaction. “When anomalies occur,” experts responded “effortlessly and fluidly,” in part because they were quickly able to discern what was an anomaly. They didn’t overreact to what was normal, but they noticed potential problems quickly. They could distinguish students who were quieter than normal because they were thinking deeply from students who were quiet because they were bored. They were able to quickly separate signal from noise, in part because they were comparing what they saw to a mental model.

So where the rest of this book discusses specific techniques, this chapter describes core principles that can help teachers build a stronger mental model and thus choose among techniques and make better decisions while teaching, with “better” defined, most of all, as resulting in more learning and development among students. Deciding begins with accurate perception—a mental model aids in perception—but while perception derives from experience it develops more rapidly when it is informed by understanding of key principles.

This is something I did not include in earlier iterations of the book but have added to this edition to put even greater emphasis on understanding the purpose of the techniques. “Brilliant teaching always begins with clear vision and a sound purpose,” Adeyemi Stemberge writes in *Culturally Responsive Education in the Classroom*. “The teacher who deeply understands this is . . . able to evoke brilliance from even the most mundane of strategies” (p. 154). Put another way, “Everything works somewhere and nothing works everywhere,” as Dylan Wiliam writes. Impeccable technique at exactly the wrong time or for the wrong reason is a dead-end street.

After a school visit not long ago, my colleague Darryl Williams weighed in on an example. We’d seen a teacher engage her students beautifully—every hand eagerly in the air for most of her lesson. The eagerness was palpable and, as a reader of *Teach Like a Champion* might point out, the participation ratio was high. There were lots of opportunities to *Turn and Talk*. But Darryl had felt as though something was off. The questions themselves were

insubstantial and the answers were vague. The teacher had not thought through what the most important questions were and what good answers would sound like in advance. “If people try to use techniques to compensate for a lack of clarity about their content, the lesson won’t work,” Darryl said.

Compare that to Sadie McCleary’s teaching in the video *Sadie McCleary: Keystone*. She too uses *Turn and Talks* to boost the ratio in her classroom. Hands are in the air and students engage dynamically. But her intentionality about what she’s choosing and why is remarkable. Sadie described her thinking this way:

If it’s a meatier question, I always have students write or *Turn and Talk* first to increase participation, then circulate while they’re talking and choose a kid or two to *Cold Call*.

If it’s something that is easier, I might ask out loud but gather data in the moment by *Cold Calling* specific students—I choose kids who I think of as bellwethers—indicative of how kids often think about things. If it’s something really simple that I want all students to quickly remind themselves of, I might use choral response and we’ll all say it aloud.

Sadie thinks carefully about technique, but her understanding of the principles of how learning happens frames her decisions—her goal is to keep students thinking constantly and actively building long-term memory. Sailing along, there are knots to tie and sheets to trim, but a teacher also has to keep an eye on the compass.

You might argue that the chapter titles of this book are already a set of design principles for a model of the effective classroom—that one should “check for understanding” and have high academic and behavioral expectations, for example, or that the “ratio” of student work should be high and include a balance of writing, discussion, and questioning. In many ways they are, but they are *teaching* principles and even those principles need to be supported by principles of *learning* that can help to explain why certain methods work as well as how and when to use them.

First, though, let me make a brief digression on the topic of perception. Perception is crucial for educators to understand because it shapes decision making. We can only make decisions about what we see. For a teacher to recognize that Julissa is slowly growing despondent over the math, she must first perceive Julissa’s body language and facial expression. Many people assume that this is far simpler than it actually is, that if we look at Julissa we will see her, but seeing is in fact far from automatic. The first, often overlooked step in making better decisions is seeing better.

“We are aware of only a small portion of our visual world at any moment,” Christopher Chabris and Daniel Simons’ write in *The Invisible Gorilla*, their study of a topic teachers will know a little something about: inattention blindness. That’s the technical term for every person on earth’s ability to look directly at something important and simply not see it: a car entering the intersection, a student’s tentatively raising her hand or, frankly, an eraser flying across the room. It happens all the time to people who work in complex perceptive environments. We want to think perception is objective and automatic. We don’t really believe that we fail to perceive. That’s the tricky part. Chabris and Simons write that it is “flatly incompatible with how we understand our own minds” (p. 13).

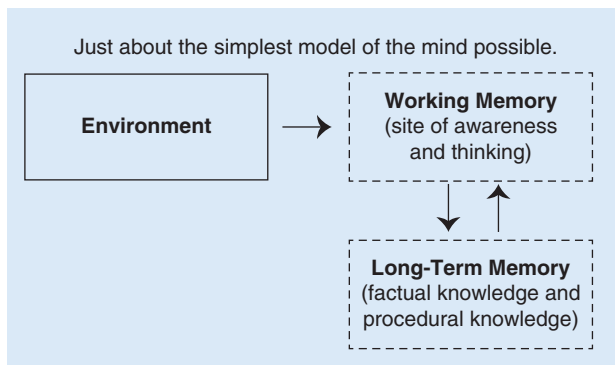
So what do you do when perception is fallible but really matters—when it’s critical to note the student who is quietly edging toward frustration, for example, or when you’ve been working area problems for ten minutes and Daphne has not picked up her pencil yet? “There is one proven way to eliminate inattention blindness—make the unexpected object or event less unexpected,” the authors conclude. In other words, 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. A recent study found that skilled radiologists were more accurate in making correct diagnoses from X-rays than novices (that is, they were more likely to perceive them correctly), but the errors of less skilled radiologists were not randomly distributed.<sup>4</sup> They feared “missing something” and this anxiety caused them to consistently over-diagnose conditions that did not exist. Even worrying that you don’t understand what you’re seeing shapes how you see it.

With that in mind, it’s worth spending some time discussing five guiding principles, which I hope will provide a helpful mental model of how learning works and increase your ability to perceive accurately in the classroom and to apply the techniques in this book in a way that gets the most out of students. They are:

1. Understanding human cognitive structure means building long-term memory and managing working.
2. Habits accelerate learning.
3. What students attend to is what they will learn about.
4. Motivation is social.
5. Teaching well is relationship building.

## PRINCIPLE 1: UNDERSTANDING HUMAN COGNITIVE STRUCTURE MEANS BUILDING LONG-TERM MEMORY AND MANAGING WORKING MEMORY

Here is a simple model of the structure of human cognition as provided by Daniel Willingham in his outstanding book *Why Don't Students Like School?*



Among the things it points out is the fact that working memory is the means through which we consciously interact with the world. Any thinking we're aware of doing, such as critical thinking, occurs here.

The power of working memory is prodigious. It has allowed humankind to discover penicillin, create the musical *Hamilton*, and conceptualize String Theory. But beyond its immense power the most dominant characteristic of working memory is its tiny capacity. We struggle to hold more than one or perhaps two ideas there at a time. Here's a way to test the limits of your own working memory. Reread the first two sentences of this paragraph. Then close the book and try to copy out the sentences verbatim on a piece of paper. You will likely struggle to remember even those two simple sentences. That's you coming up against the limits of your working memory. You just can't hold much information there at any given time. A version of this problem—cognition being constrained by the limits on working memory—occurs over and over for learners. If we try to keep too much information in working memory, we will fail to remember it.

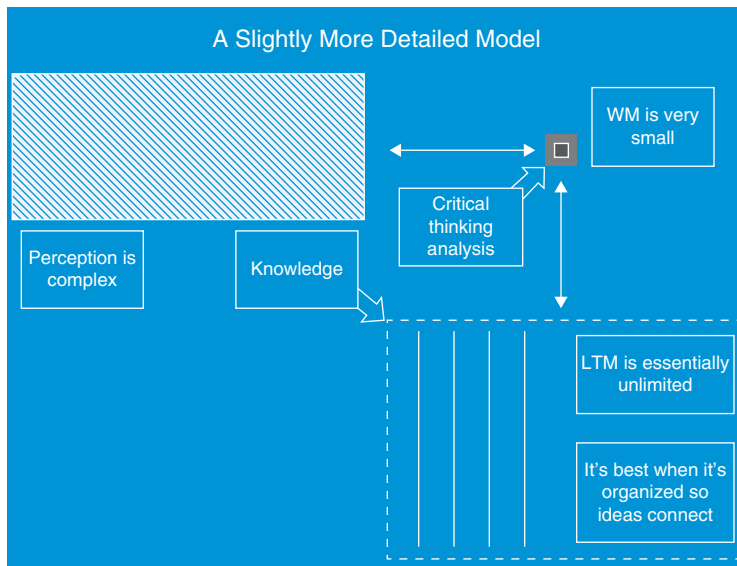
If we persist in overloading working memory we force it to choose among the things we ask it to work on. For example, if you are driving and also trying to use working memory for another task—having a conversation on the phone with your partner about things to pick up at the store, for example—you are suddenly several times more likely to have an accident if

you make a left turn across traffic. This has nothing to do with whether your phone use is “hands free.” The problem is not free hands but free working memory. A heavy load on working memory degrades your perception and you are less able to judge the approach of other vehicles. You perceive less from the environment when your working memory is taxed and more when it is free. This by itself has profound implications for teaching, one of which I’ll discuss in Chapter Two—the idea that preparation means that you can teach with less load on working memory. Or conversely that if you haven’t prepared well, your working memory will be hard at work trying to remember what comes next in the lesson and you will be less likely to see what’s happening around you in the classroom accurately.

A well-developed long-term memory is the solution to the limitations of working memory. If a skill, a concept, a piece of knowledge, or a body of knowledge is encoded in long-term memory, your brain can use it without degrading other functions that also rely on working memory. And long-term memory is almost unlimited. 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. The scourge of the new-age educator, facts, mere facts, lots of them, encoded carefully in long-term memory and easily recalled through practice, are in fact the foundation of higher forms of cognition. You begin to think consciously about something in working memory—a scene in a novel you are reading, say—and suddenly the connections from your long-term memory start to pour in. It’s like another book you read; it’s an example of a sociological theory; or, oh, that’s not very historically accurate. These forms of “critical” and “creative” thinking are relying on knowledge encoded in long-term memory. As Willingham writes, “Data from the last 30 years lead to a conclusion that is not scientifically challengeable: Thinking well requires knowing facts.” . . . The very processes that teachers care about most—critical thinking processes like reasoning and problem solving—are intimately intertwined with factual knowledge that is in long-term memory.”<sup>5</sup> “Much of the time when we see someone apparently engaged in logical thinking, he or she is actually engaged in memory retrieval,” Willingham continues.

This notion should inform every teacher’s mental model. First, critical thinking and problem solving are not the opposite of factual knowledge. They rely on it. This is important to note because a great many educators are scornful of facts. Why teach them, the argument goes, when you can Google anything? We should teach critical thinking instead. The answer to that rhetorical question as Willingham tells us is that you *can’t* teach critical thinking without facts. Problem solving is “domain specific”; for the most part you can have deep thoughts only about things you know something about.

In a recent workshop with school leaders I tried to add a bit to Willingham’s diagram to capture a bit more about what it tells us. I came up with something like this:



In my version I’ve tried to make working memory very small to remind you that its capacity is limited. But long-term memory is large. The dotted line suggests that as far as cognitive scientists know, it is all but unlimited. Not only does having more knowledge in long-term memory not make it harder to add something new there, it may make it easier. The more you know, the more connections you can perceive to new knowledge; this makes it easier to remember more of that new knowledge and gives you more connections to help you recall it. An expression among cognitive scientists is “things that wire together fire together.” If we think about them at the same time, recalling them will also happen in concert and, in an ideal case, remembering something from long-term memory will enhance recall of related concepts and ideas. The antidote to the argument that memory is merely isolated facts is, in part, to organize our memories so that knowledge is connected to other facts, insights, and observations. This is how initially isolated facts become something broader that we call knowledge. Remembering something requires successful storage *and* successful retrieval, however, and the speed and ease with which you can find it is *the* critical factor in your ability to use it so again organized memories with lots of connections among lots of information are also more likely to have more ways to recall the knowledge they contain successfully.

I also added the idea to my model that perception is complex because one of the things that working memory does most effectively—help us to perceive the outside world—is much more complex and fallible than we think. Broadly, if working memory is overloaded—students will both perceive and remember less. The solution is to have knowledge encoded in

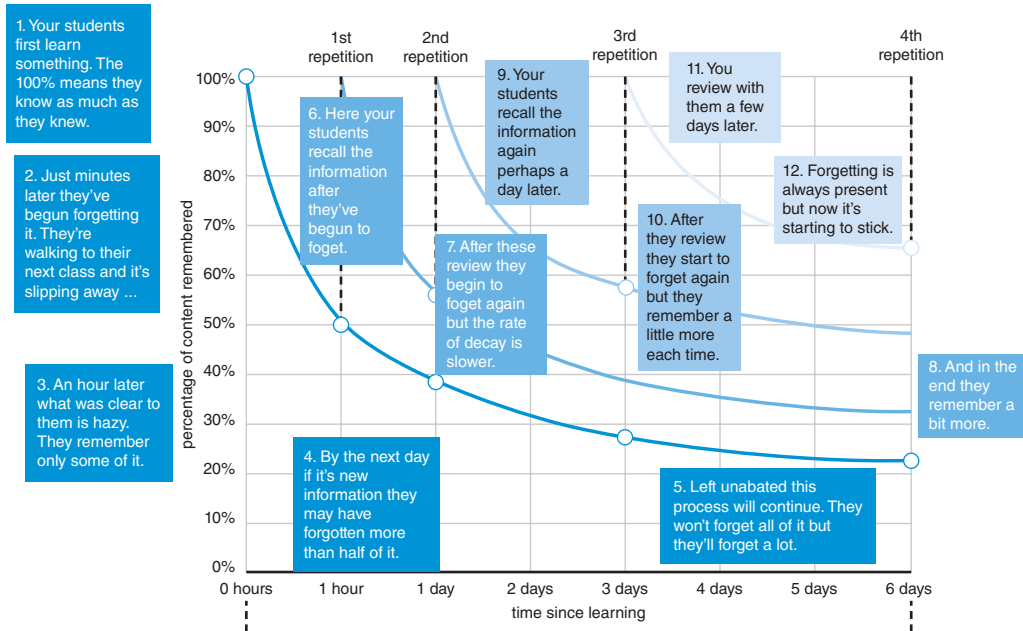
long-term memory. Once information is stored there it can be used with very little load of working memory.

Of course, if working memory is underloaded there are also poor outcomes—boredom and reduced learning, for starters, but also lack of attention: The mind finds other things to do. So it's critical to attend to and manage the amount of new information young brains work with. We want them constantly engaged and interested but not overloaded with more than they can manage. The science behind this is known as “cognitive load theory.” It's among the most important things for educators to know about. Sweller, Kirschner, and Clark, who are its foremost researchers, define learning as a change in long-term memory and observe that “The aim of all instruction is to alter long-term memory. If nothing has changed in long-term memory, nothing has been learned.”<sup>6</sup> That's why forgetting is so important to think about. You'll find this concept in several of the new techniques in this book.

A last critical note on managing working memory: Sweller's *guidance fading effect* argues that experts and novices learn differently. Problem-solving environments where learners are tasked with inferring solutions rather than being provided with guided instruction work well for experts because they perceive these environments accurately and can quickly connect what they see to their vast background knowledge. For novice learners this does not occur. They are likely to perceive incorrectly or attend to low-value phenomena or to use up their scarce working memory searching for the right information. With little knowledge on the topic in their long-term memory, they make far fewer connections. For novices carefully guided instruction is far more effective. However, too few educators are aware of this distinction. They tend to presume what works for experts is therefore best for everybody. If it's how elite mathematicians learn, well then, let's give it to everyone. But in fact the guidance fading effect tells us that this is a mistake. “Students should initially be given lots of explicit guidance to reduce their working memory load, which assists in transferring knowledge to LTM,” Sweller writes. “Once students are more knowledgeable, that guidance is unnecessary and interferes with further development of expertise and should be faded out and replaced by problem solving.” Students in a K–12 setting are usually novices, although this definition is fluid. You can be an expert on *Macbeth* but a novice as soon as you start reading *Hamlet*. Or vice versa. Technique 21, *Take the Steps*, in particular discusses several issues raised by the interactions of working and long-term memory—“the curse of expertise” and the necessity of parsing out new information in steps with practice interspersed to address the capacity issues of working memory—but it will play a role throughout the book. You'll want to use retrieval practice frequently to install knowledge in long-term memory and use *Cold Call* to ensure that everyone is getting the

practice, for example. You'll want to ask students to write before discussions to reduce the strain on working memory of having to remember what they wanted to say, leaving them free to listen to one another's comments, for example.

A final point about the importance of long-term memory comes from a glimpse at what's known as the forgetting curve, which demonstrates the rate at which the typical person forgets things they've learned.



The original forgetting curve was derived in the 1880s by the German psychologist Hermann Ebbinghaus and plotted the actual rate at which he was able to remember a series of nonsense syllables after learning them. Though your students aren't learning nonsense syllables, the rate at which they forget what they have learned after they learned it is captured here, and the principle is broadly accepted by cognitive psychologists. The forgetting curve tells us that:

- As soon as you learn something, you begin forgetting it almost immediately.
- The rate of forgetting is often shockingly high; a few hours after learning something, people routinely remember only a small fraction of it.
- Each time you practice recalling what you know, the rate and amount of forgetting is reduced somewhat.

- Retrieving something back into working memory slows the rate of forgetting, but how and when the retrieval happens is important. (I discuss the details of retrieval more in technique 7, *Retrieval Practice*.)

That's immensely useful information, but forgetting curves can't tell us everything. They cannot tell you exactly what the rate of retention will be for your students generally or for a specific student at time A or time B for a specific topic you've taught. There are individual differences and factors in the learning environment, like how much attention students are paying and how new to students the information was, so the curve in most cases is theoretical but the theme is clear: We forget quickly and decisively as soon as we stop thinking about something and this process is always at work. Left unabated its effects are massive.

One way this is especially relevant is that what students appear to be able to remember at the end of a lesson does not represent what they really know, because the knowledge is not yet in long-term memory and forgetting begins when teaching stops. Students will begin to forget it the moment they walk away from the class. Yes, use *Exit Tickets* to assess at the end of class. But know also that, barring further review, this technique will give you a false signal.<sup>7</sup> You will assume your students know how to add fractions with unlike denominators, but the test given the next week or at the end of the year will measure original learning minus subsequent forgetting and you likely won't see what you had hoped to see. Managing forgetting is as important as managing learning (but it's not as visible).

This is especially relevant because only knowledge in long-term memory can be used without reducing working memory available for other tasks or eroding perception. If you ask a higher-order question, such as "Can you find another way to solve this problem?" then the answer is likely to be *no* if working memory is required in service of the calculations. If you want higher-order thinking or greater perception from students, help them to free their working memory at the moment you want them engaging with those tasks by making the skills they're using in the moment more fluid. This is why reading fluency and automaticity with math facts are critical—they are necessary because we don't want students thinking about these things at crucial moments, and fluency is the only way around the problem of working memory. You cannot perceive the author's tone if your working memory must be engaged to parse the syntax of the passage you are reading. When the foundational skills are not fully automatic it is very difficult to have profound or insightful thoughts during reading; bright and eager children can thus fail to have much to say about a passage they have read because their working memory was spent figuring out the words. Background knowledge is similar. You cannot make a leap to connect the prime minister's attitude to his predecessor

a century before unless that knowledge is in your long-term memory. “Looking it up on Google” actually requires your working memory.<sup>8</sup>

So what’s the ideal number of interactions required with content if we want to encode it in long-term memory? Research suggests three or four but with many caveats and a lot of unknowns. In *The Hidden Lives of Learners*, Graham Nuthall, for example, finds that whether students have had three interactions with material determines with 80 percent accuracy whether they will have learned it. That is, when he and his colleagues sorted through the things that were taught during a given class and determined whether students had encountered it and attended to it—either through the teacher’s instruction or through some other interaction (with peers say)—they could predict with 80 percent accuracy whether students had learned the material. So predictive was this method that Nuthall hypothesizes it is at least possible that “other factors (such as the use of open-ended questions, feedback, advance organizers, relevant examples and analogies and the interest level of the material) . . . may not be relevant to student learning except to the extent that they enhance the likelihood that students will encounter [and attend to] relevant content.”<sup>9</sup>

But of course even if Nuthall’s research were conclusive, the complexity and familiarity of content, never mind the quality of the presentation of the material and the attentiveness of students could alter this number. Further, the idea that—if you don’t hear it all three times you won’t learn it becomes especially important in light of research on the constancy of low-level distractions in many classrooms. So would the degree of fluency the content required. “Remembering it” can mean different kinds of experiences. With some knowledge it’s fine if need I a few seconds to pull it out of long-term memory. There’s no rush. But some things I need in the blink of an eye and therefore, we can presume, require more iterations to ensure ease and speed of recall.

So how should this principle inform teaching decisions? You’ll want to keep working memory free for students, so roll out new content in manageable chunks and be sure to constantly embed short sequences of practice and retrieval. *Cold Call* is a great tool for making everyone do the work of retrieval, even those whom you don’t call on. You can also use *Everybody Writes* and other forms of writing to cause student thinking to be more durably encoded in memory. Remember that thinking hard about things encodes them in memory. A good adage to remember is that students remember what they think about, so get the ratio high and build habits of attention and focus. Constantly have an eye to building knowledge (knowledge organizers can be helpful) and reinforce reading fluency with *FASE Reading*.

But also don’t forget your own working memory. Chapter Two will help you use lesson preparation to free it for perceiving what’s happening with students while you teach.

When gathering data on student mastery, remember that the data can quickly overload your working memory so track it via active observation.

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## Online Lessons

Managing the limitations of working memory is one of the core challenges of teaching in any setting. Online, its challenges are magnified since we are always competing against potential distractions and because attention is fractured online. So while one of the silver linings of online instruction was how easy it was to gather data by, say, asking students to respond in the chat, the challenge was at times that this yielded *too much* data. The “velocity of data” was often too much for working memory: thirty student responses scrolling upwards across the screen is more than teachers or students can process—and the result was at times everyone chatting and no one able to read or attend to the comments with adequate attentiveness. The video *Harley and Clayton: Slowing the Data* shows Rachel Harley and Hasan Clayton, two teachers at Nashville Classical Charter School, providing an elegant solution. They ask students to chat their responses only to them, not to “everyone,” then curate a few exceptional answers from the chat stream and post them where the class can read and reflect on them with quality and focus. There’s really no reason teachers couldn’t curate a set of interesting examples from students and present them to guide and inform discussion in a similar manner in brick-and-mortar classrooms as well.

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## PRINCIPLE 2: HABITS ACCELERATE LEARNING

One corollary of the fact that working memory is both powerful and limited is the realization that every task you can manage to do with a minimal load on working memory allows you to use the remaining capacity for something more important. Fluent reading is perhaps the most important example of this. When students can read with fluency, their working memory is freed to think deeply about the text and their comprehension and ability to analyze increases.

This also explains why forming habits is so critical to learning. Making common, everyday activities familiar enough that we can do them without having to think about them 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 alarm goes off in the predawn darkness and your hand slaps the snooze button. You are in a half-waking state but soon standing at the sink, toothpaste on your brush; now the shower is running. Likely you are operating based on habit as your brain sleepily struggles to engage the new day. You do what you do because that's what you do. Your actions would happen more slowly and require more willpower and working memory or might not happen at all—if they were not habit. A familiar routine allows you to save your willpower for something else. Interestingly, research suggests that willpower is indeed finite in this way. Most of us can use it up. The term “ego depletion”<sup>10</sup> describes this effect.

But something more happens as a result of habits. Likely some of the freest and widest ranging thoughts you will have today will occur while you are doing things you do out of habit: brushing your teeth; standing in the shower; perhaps driving to work. Your mind can do these things at very little cost to working memory; suddenly it is free to roam. Before you know it, 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.

Think about that in classrooms terms. When you ask your students to write in response to something you've been reading or discussing, the more the process is established as a habit—get out your Reader Response Journal and begin writing—the more working memory is left over to think about the novel. You can see that play out in a sequence from Jessica Bracey's fifth-grade classroom in Newark, New Jersey, in the video *Jessica Bracey: Keystone*. Jessica says: “Tent your books. Question 87 in your Reader Response Journals. You have evidence in the text—go.” Less than three seconds later, every pencil in the room is moving and, more importantly, every student is thinking deeply about the book. Compare Ms. Bracey's counterpart down the hall, Ms. Yecarb. Her classroom is the opposite of Ms. Bracey's. She thinks students get bored doing things the same way every day, so she often improvises new ways to make familiar tasks interesting. “Take a few minutes to write down your thoughts about why Maddie does what she does,” Ms. Yecarb says. “Write this down in sentences?” one student asks. “Yes,” says Ms. Yecarb. “On what?” another student asks. “Anything will do; scrap paper or your notes. Use a big purple crayon if you have one! Just try to think deeply,” Ms. Yecarb responds. “Is this OK?” asks one, holding up her notebook. “I can't find a piece of paper,” says another student. “Hey!” says a third. Her deskmate has been looking for a pencil in his backpack and has unsettled her desk.

It's not just that time has been wasted, though it clearly has. It's that continuity has been lost and focus squandered. By the time her students begin writing they will remember less about the text. Ideas that were beginning to develop a few seconds before have been driven out of working memory by the demands of getting pencil to paper. Their insights will be scattered on the wind. And as they write, some part of them will be thinking about mundane

aspects of task completion—Am I writing enough? Are other people writing more?—because responding in writing is not yet a habit. Ironically, in an effort to make it “interesting,” Ms. Yecarb focuses more attention on the task of writing and less on the book itself.

In Jessica’s class, however, the ideas are flowing right away because there is both habit and procedure. There’s a journal in everyone’s folder; the folder is on everyone’s desk, and pencils are in the trays. They have done this, her narrative reveals, eighty-seven times already, and so it is the equivalent to them of brushing their teeth. They can do it not just quickly but with their minds on bigger things—the book, in this case. Jessica’s students are likely to think more deeply and creatively specifically because she’s made the logistics of responding in writing a habit. You can see the benefits of this in the rest of the video. What you do out of habit takes less willpower—so every student is writing the whole time. What you do out of habit allows your working memory to be on things of substance—so students have engaged Jessica’s questions in thoughtful and reflective ways. No surprise then that when she prompts them, every child’s hand goes up eagerly. She has built a setting in which it is easy for their minds to engage and they have responded.

Habits, Charles Duhigg tells us in *The Power of Habit*, are the brain’s way of saving energy, or allocating its energy to other more pressing things and they are just as important for teachers as they are for students. According to a study by social psychologist Wendy Wood and colleagues at Duke University, up to 45 percent of our daily behaviors are automatic.<sup>11</sup> These make it easier to operate—thinking is hard work and the brain is always trying to conserve energy and focus for when it really needs it. You can’t plan your lesson if you’re thinking about brushing your teeth. But there are also habits you develop to help you think more deeply about what you’re doing, like your process for lesson preparation. “I always prepare my lessons the same way,” Sarah Wright told me. The morning of the beautiful lesson in her Keystone video, in which she is so compellingly responsive to her students and seems to make every decision right, she “did the lesson as if I was a student, thinking it through from their perspective and writing out the answers I hoped I’d get.” Teachers like Sarah use a familiar and productive habit to prepare. That it’s a routine means that the students aren’t thinking about how to get ready, but rather about what a good student answer looks like.

It’s the same for students. We want to optimize their use of their thinking by filling their school days with two kinds of habits: (1) habits that they can do so that more gets done with less thinking, and (2) habits that cause them to do the most productive thinking in the most efficient way. A way of distinguishing these two types of habits might be having a way of doing the unimportant things quickly and easily and having a way of doing the important things well and in a way that channels the greatest amount of focus into awareness of and reflection

on the content. It's obvious that we want consistent habits for the trivial stuff, in other words, but it's less obvious that we want consistent habits for the most frequently and most important things. True, there are useful habits like how to come into a classroom and how to pass out materials. But academic habits—how to hold a discussion and how to write in response to text—are even more critical. What we do frequently benefits most from being done consistently, so building habits around paying attention well (*Habits of Attention*) and listening and building community during discussions (*Habits of Discussion*) pay massive dividends, as do consistent routines for encouraging participation (*Turn and Talk, Silent Solo*), not to mention traditions like putting hands up to answer (there's nothing worse than interrupting a student who makes a good comment to ask the student who shouted out—again—to desist from shouting out) and down when others are talking (see technique 29, *All Hands*).

So build your classroom around procedures that become habits. Education writer Tom Bennett describes the shared habits that become a routine in a good classroom as being a “superpower.” Habits, he writes, become part of students: “They behave the way they need to behave, without thinking. And that means . . . time and head space to think about the things you want them to think about—the learning. Routines are the foundation of good behaviour. They take time to communicate and imbed. But nothing is worth your time more.” Tom's right, of course. And what he says of positive behavior is even more true of thinking behaviors and academic habits. Ironically students usually take comfort—and sometimes pride—in knowing how to do things quickly and well. But again, you will be transferring the focus of their working memory from how to do a task to the significance of the question. So a classroom infused with strong habits is usually a happy place too.

There's a third, more subtle aspect of habit building that's worth thinking about. Habits of mindset, and a story from my visit to London's Michaela school, which serves students from some of the poorest sections of London, will help to explain why. At Michaela—which was recently the top-scoring school in England on at least one math exam—students at the school stand up at lunch each day and give thanks. I saw this myself on a visit in 2016.

After eating, the pupils were offered the chance to stand and express gratitude in front of half the school. Their hands shot into the air. All of them. Everyone wanted to be chosen to say thanks.

Students thanked their classmates for helping them study. They thanked their teachers for expecting a lot and helping them. One student thanked the lunchroom staff for cooking for them (incidentally, cafeteria food in the UK is far superior to that in the United States and much more likely to involve on-site cooking). And still the hands shot up into the air.

A student thanked his mother for everything she did to provide for him. He was perhaps thirteen years old and shared his appreciation in front of perhaps a hundred other teenaged boys, speaking haltingly but honestly about how grateful he was for how hard she worked and the sacrifices she made. You don't see that every day. The gratitude seemed to be endless and came pouring out of them until the teacher in charge said it was time to go back to class.

I found myself wondering about it for a while afterwards. Here were kids from some of the poorest sections of the city, kids who might have faced difficulty at home and on their way to school. Many had left (or even lived still) in places racked by violence and difficulty. But at Michaela, their days were punctuated not by someone reminding them that they had suffered or been neglected by society, but by the assumption that they would want to show their gratitude to the world around them.

What did this mean? Well, first of all, it gave rise to a culture of thoughtfulness. Everywhere I looked students did things for one another. In one class a student noticed another without a pencil and gave her one without being asked. In the hallway a student dropped some books and suddenly three or four students were squatting to pick them up. When students left a classroom they said, "Thank you" to their teacher.

Maybe thanking makes behavior worthy of gratitude more likely to occur. Students know their goodness is seen and valued, not just by their teachers but their peers. It spreads. Maybe at first it's due to the plausibility of appreciation but after a while it just takes on a life of its own. People are kind and considerate because, at Michaela, it's what they do—it's their habit.

But the gratitude, I think, is as much about the giver as the recipient. Maybe that's the most important point. To show gratitude changes your perception of the world. It causes you to look for and then to see the goodness around you, and therefore to perceive a world full of goodness all around you. Which makes you happy. And just maybe optimistic—to think the world is the kind of place that will embrace you when you give your best. The habit of showing gratitude caused students to see more things to be grateful for, to have a more positive view of the world. They saw it as a place where people were likely to smile at them, help them, support them. Building a habit of seeing it made it appear everywhere. In the *Happiness Advantage*, Shawn Achor describes this as the Tetris Effect. You play enough Tetris and you see its characteristic shapes everywhere. Similarly, you see enough hard work behaviors from your peers, enough generosity and kindness, enough academic success, and it changes your view of the world. And this, too, is something we can use in the classroom, recognizing that where we direct our students' attention can be a self-fulfilling prophecy. Narrating the good, the hard work, and the productivity around them helps them to see it when it is present and to learn more from observing it.

### PRINCIPLE 3: WHAT STUDENTS ATTEND TO IS WHAT THEY WILL LEARN ABOUT

Graham Nuthall's *The Hidden Loves of Learners* is a fascinating book in part because of its description of tiny and otherwise mundane moments in the lives of ordinary students.<sup>12</sup> As I noted before, one of his main premises is that students learn ideas and content that they come into contact with three different times—especially if each interaction is comprehensive and if the interactions present the information in slightly different ways. But, he notes, this only applies if students are paying attention, and Nuthall describes a series of experiences that will be familiar to all of us. A group of students are learning about Antarctica, for example, and are supposed to have learned that Antarctica is one of the driest places on earth. Some have and some haven't. Nuthall notices that a student named Teine is whispering to a peer and passing notes while a video is describing the desert nature of Antarctica. Teine fails to learn the content. Another student, Tui, often decides that he already knows the content being taught and so fails to listen carefully. He's not passing notes but he's not attending, and he, too, fails to learn.

This reveals an obvious but important fact about education: In any learning environment some people develop quickly and some people develop more slowly. One major factor in the rates at which individuals learn is their ability to concentrate for a significant period of time. Half-focused or fleetingly focused learners master things more slowly and with more difficulty. This is often apparent to us when we work with students with diagnosed attention issues, but of course the ability to sustain focus is spread unevenly across all students (and adults); its strength is a hidden driver of progress.

As I discuss at greater length in technique 48, *Habits of Attention*, “selective attention” is the term for the ability to focus on the task at hand and ignore distraction. It is the ability to select what you pay attention to—to lock out distractions and lock in on the signal—and has “reverberating effects” on success in language, literacy, and mathematics, note cognitive scientists Courtney Stevens and Daphne Bavelier. They add that there are potentially “large benefits to incorporating attention-training activities into the school context.”<sup>13</sup>

Not surprisingly, it turns out that building strong habits for focusing and maintaining attention—a key aspect of how educators help support students with attention deficits—is useful for all students. Still, attention may vary from moment to moment even for the same person. Learners may concentrate deeply in one setting and be scattered in another, and this variability reminds us that learning environments shape habits of attention. Attending to attention—building habits of sustaining focus—is one of the most important things that teachers can do. If there's a mental model of a productive classroom it surely includes

students able to lose themselves in a task and work at it steadily for a significant period of time, which means a setting where concentration can reliably be maintained and tasks and activities where the ability to focus is carefully cultivated.

This has always been true—and has always been a challenge, perhaps—but probably never more so than today, when the capacity of technology to affect and erode attention is exponentially greater than ever before. Yes, educators in the 1960s argued that television eroded students' attention and focus, but young people at the time did not walk around with a television in their pocket. Television was not the medium through which all of young people's social interactions were funneled. Young people did not surreptitiously—or openly—check their TVs every few minutes during class. They were not habituated to need to check their televisions every few seconds. A young person—and an adult—today owns very few garments that do not have a pocket for a smartphone. The assumption—written in the language of fabric—is that our phones are and must always be within reach. Quietly, purringly, the dosage and accessibility of technology has increased to the point where it has affected not only the level of attentiveness but the overall capacity for attentiveness of most people in profound ways. While a teacher's approach to attentiveness has always been a critical if unspoken part of a productive classroom, it is rapidly becoming more urgent. 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. Schools and teachers now must constantly design their choices and decisions with this challenge in mind if they hope to succeed. This is by far the single biggest change to emerge in education since the previous version of this book was published.

In his book *Deep Work*, Cal Newport examines the phenomenon of attention in the workplace, studying the conditions necessary to produce world-class knowledge work. Success in such a setting requires that you “hone your ability to master hard things,” he notes. A computer scientist by training, he uses writing code as an example. To be able to write complex, technical code very well is an outstanding thing to be good at, especially today, because knowledge work has never been more highly valued in society. Code moves freely and at light speed around the globe; if you write it well your audience of potential users is almost limitless. But this state of affairs—you in your happy place, writing code and sipping a latte while the world clamors for more and more of it—has a downside. Everyone else's code also moves freely and at light speed around the globe. Any line of it written anywhere in the world immediately competes with yours. All knowledge work is increasingly like this, Newport writes, and to succeed you not only must be able to concentrate to produce something uniquely intelligent, but “you must be able to do it quickly, again and again,” with “it” being the ability to achieve

mastery of new and difficult things. The key to mastering complex material with speed and flair, Newport writes, is the ability to sustain states of unbroken attention and deep concentration. Those who can focus best for longest separate themselves from the crowd.

However, Newport also observes that it has never been harder to build these focused mindsets because our daily lives (which include our work and learning environments) socialize distraction, lack of concentration, and states of constant half-attention. They erode rather than build the sorts of locked-in mental focus that ultimately drive so much of success. Concentration, he concludes, has never been better rewarded and never harder to achieve.<sup>14</sup>

A useful term in understanding why is “attention residue.”<sup>15</sup> When you switch from one task to another, your mind remains partially focused on the previous task. You pause during a project to check your email and when you’ve returned to the project your mind is still partially on your email even if you don’t realize it. You’re now less likely to do your best work. This is especially corrosive, Newport points out, to learning new and difficult things, but researchers have found that people in most working environments operate in constant states of low-level distraction. It’s common for students, too. The average undergraduate student, presumably more mature than K–12 students and an example of academic success and interest, still switches windows every nineteen seconds when working on his or her laptop, for example.

But beyond attention residue is a larger issue: Our brains are “plastic”—neuroplastic, really—which means they rewire according to how we use them. And the way we, and especially young people, use them increasingly involves constantly switching tasks. Every two and a half minutes is average for an adult; it is surely more for young people. The result is not just that we are often more distracted than we ideally would be, but that we are increasingly less able to sustain focus. Our brains increasingly expect distractions to “pop up,” and become agitated and distracted by the deferral of this gratification. As productivity expert Maura Thomas put it in a recent article,<sup>16</sup> “Our productivity suffers not just because we are distracted by outside interruptions, but also because our own brains . . . become a source of distraction in and of themselves.”

“Skimming is the new normal” writes Maryanne Wolf in *Reader Come Home*, one of the most profound and important books on learning in recent years. She describes how constant exposure to technology not only distracts us in the moment but rewires our brains to be less attentive, less capable of attention, and less able to sustain reflective states required in particular for deep and meaningful reading. Perhaps you notice this in yourself: Suddenly in the last few years you’ve found your eye rapidly skimming down the page, while you read,

inching ahead to look for . . . something. This is your brain, having been wired for distraction by a digital environment in which your average sustained attention to any task is under two minutes, looking for something new and flashing. In other words, this is you not only failing to pay attention, but losing the capacity to do so. You notice it because you once lived a low-tech life and feel the absence of the focus you used to have. Your students did not and do not. For digital natives, this is the only reality they know.

This raises several questions for teachers. Do the environments they build in their classrooms socialize sustained attention or fractured and skittish attention? What can they do to help their students if they observe them, singularly or as a whole, to require stronger attention skills?

Recently I ran into a principal and I asked him about his students and how they are changing. “Attention spans are shorter and shorter,” he noted. “Especially because most students don’t read outside of school anymore, unless they have parents who make them. But we’re doing our best to adapt our instruction.” It was a short conversation and I never found out whether he meant *We are adapting instruction to respond to the reduced attention of students by giving young people learning tasks that require less sustained focus* or *We are adapting our instruction to try to intentionally socialize concentration and improve student attention spans by engaging in sustained periods of a working on a single task*. Were they acceding to the change or fighting back, in other words? This is a critical question. The latter can—and just possibly must—be accomplished. If you look at the videos referenced in this book, I believe you will see plenty of joy and energy and fast-paced learning, but you will reliably see in almost every high-achieving classroom students who can sustain focus on a single task, often quietly, deliberately, and independently. This is in part because their teachers have prioritized it and have built it up over time until it was a habit.

You will also see in the videos environments where constant disruptions to work, to thinking, and to reflection are rare. This is because teachers know that students deserve as much.

Even if the ability to focus varies widely among students and they walk through our doors with different levels of it, we can still seek to develop the ability to focus and pay attention as much as possible. Accomplishing this has always been one of the most important outcomes of schooling—even if this fact is not always recognized or acknowledged. Schools are increasingly one of the last places that can aspire to insulate young people from constant distraction, digital overstimulation, and task switching. There is a place for digital devices in learning, certainly, but there is just as much a place for sustained time without them. 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.

In 1890 (when high-tech meant newfangled innovations like the tabulating machine), the psychologist William James noted in *The Principles of Psychology* something else about

attention: that what we pay attention to shapes our cognition more broadly. “My experience is what I agree to attend to,” he wrote, anticipating a vast array of twenty-first-century research that suggests how profoundly what we pay attention to shapes us. Attention, in other words, is not just a sort of “muscle that allows us to keep looking” as my colleague Hannah Solomon put it in a conversation on this topic, but also “the lens through which we students look,” and this is also critical to consider.

So how might attending to attention play out in the classroom? Here are some initial thoughts. You will surely find more.

You’ll want to build strong habits for focused sustained writing through *Silent Solo* and then extend the amount of time that students can engage in writing over time. You’ll want to use *FASE Reading* to train students to focus on what they are reading without interruption for a period of time and to help them experience the pleasure of focus—“flow” as some people call it, the moment when you lose yourself in a task and the rest of the world—including its phones and screens—fades away. You’ll want to help students learn to concentrate during teaching and discussions via *Habits of Attention* and *Habits of Discussion*. You’ll want to put *Turn and Talk* on rails. And you’ll want to think about how to bring the concept of “flow” to your own instruction via the tools in the “Pacing” chapter. Another key question is the cultural and behavioral environment in your classroom. Can you sustain times for thinking free from interruption? If students shout out answers as soon as you ask, you cannot enforce wait time as a key tool that allows students to reflect and focus on questions. If this is the case, start with *Means of Participation*.

As the preceding paragraph reminds me, this book may in the end be first and foremost about building and sustaining attention.

Finally, there is technology to consider. Too many classrooms presume that doing a task with technology or on a screen adds value. Educators think that it is inherently good to wire the classroom. Technology gives us immense power but comes with profound downsides, as well. When you don’t use technology, when you prevent it, in fact, is at least as important as when you do use it. School is one of the last places where we agree to mutually not introduce constant distractions. 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.

## **PRINCIPLE 4: MOTIVATION IS SOCIAL**

The research that is powerful to understanding learning is not limited to cognitive psychology. Some of the most important insights come from a surprising source: evolutionary biology, or the history of how we came to be as we are. The most important word

in that story is “we.” While humans evolved to develop individual characteristics that were necessary to our survival—large brains, opposable thumbs, the ability to stand, and so on—our evolutionary success was primarily a group endeavor—the result of a profound instinct toward coordinated group behavior.

To win out over other groups, members of groups that survived had to prove themselves strong and able as individuals but also at least as capable in their ability to form loyal and cohesive groups. “The outcome of between-group competition is determined largely by the details of social behavior within each group in turn,” writes the biologist Edward O. Wilson in *The Social Conquest of Earth*. It was important to be strong individually—there was competition within groups too—but a strong individual not embraced by a group was doomed. What primarily determined which humans would thrive and survive were traits such as “the tightness of the group, and the quality of communication and division of labor among its members. Such traits are heritable,” Wilson concludes, and so who we are is a “consequence of individual selection and group selection.”

Thanks to this dual-level selection—what evolutionary biologists call parallel processes of group and individual competition—our characteristics are complex, fascinating, and sometimes contradictory. Not least because we are usually not aware of what we seek. After all, the point is that we evolve to do what has helped us survive without being aware of it.

The term “prosocial” describes animals that engage in individual behavior that benefits the larger group. Few animals will do this. The term “eusocial” goes a step further and describes species that coordinate and sacrifice to an even greater extent. And it is far rarer. Wilson suggests that we are among only two eusocial mammals.<sup>17</sup> Lions and wolves will coordinate to hunt, but they will not sacrifice their lives for the good of the group; they will not raise each other’s young or take care of the aged. Only humans do that though for what it’s worth humans also compete with fellow group members for food or mates or status.

Since ancient times, intense awareness of what was happening within the group was required to survive—to ensure one’s connections and to watch out for potential betrayal, for instance. “The strategies of the game were written as a complicated mix of closely calibrated altruism, cooperation, competition, domination, reciprocity, defection and deceit,” Wilson writes. “The human brain became simultaneously highly intelligent and intensely social. . . thus was born the human condition, selfish at one time, selfless at another, the two impulses often conflicted.”

The brain is a “social organ” is how Zaretta Hammond puts it in *Culturally Responsive Teaching and the Brain*, but the degree to which this is true is striking. One example is the physiology of our eyes. We are the only primate with sclera—what we call the whites of the eyes. All other primates have dark eyes surrounding the pupils. Why? The answer, many

evolutionary biologists think, is that tracking what fellow group members are looking at and thinking about is urgently important. We need to know what the group thinks, where we stand in its hierarchies and alliances, and how each action was received. The information critical to our survival is revealed in furtive glances and fleeting expressions of admiration, dismissiveness, and/or respect. Our eyes have evolved to better reveal the crucial details of approval, acceptance and scorn.

And our deep sociality also shows up in the ways we make decisions. “Social norms” are what we call the unwritten social rules of any group. “The highly social nature of human behavior means that the actions of colleagues and the broader culture of the school will have a persistent effect on how things pan out in your classroom. This is why building motivation is best done collectively,” writes Peps Mccrea. “Norms are so powerful they override more formal school policies or rules . . . However their largely invisible and unconscious nature makes them easy to underestimate if not totally ignore.” That there will be norms is “inevitable”; the key is to recognize this and shape them intentionally and positively.<sup>18</sup>

To modify motivation we must change what our students see and what they perceive as normal, acceptable values.

To be clear, some norm or other will emerge in every classroom. “There is no such thing as a neutral design,” Richard Thaler and Cass Sunstein tell us in *Nudge. The environment will shape the behavior of the individuals within it*. We choose the norms or they choose us. And if we want the norms we desire, we have to find ways to make them appear universal and more visible.

How does this affect classroom decisions? It reminds us that classrooms are first and foremost cultures that shape the actions and beliefs of the people within them. We have to establish positive prosocial norms that value student work and encourage our pupils to do what will help them succeed and thrive.

Is a culture where students look at the speaker and so reinforce that they care what they are saying “natural”? Of course not. There is no natural case. A good classroom nudges students to scholarly identity through *Habits of Attention* and *Habits of Discussion* (not to mention great lessons, rigorous curriculum, and the persistent insistence on honoring students’ time). It ensures that students see their peers eagerly reading and writing as this a great way to get any individual student to want to—or at first, be willing to—read or write. It explains why *Brightening the Lines* is so powerful in causing students to join in activities. And of course why procedures and routines are so powerful—the start by norm setting. “The biggest mistake” teachers make, Tom Bennett writes in *Running the Room*, is “to wait for behavior to occur and then react to it.” The best tools prevent counterproductive behavior in the first place.

A final note. The strength of a norm's influence “depends on how much we feel a part of and identify with those exhibiting the norms” writes McCrea. We are motivated by belonging. The last principle I will discuss in this chapter is relationships, which obviously are profoundly important. But it is worth remembering, too, that a student's sense of belonging to a culture is different from his or her relationship with the teacher. By joining with peers in actions and feeling honored, supported, and respected by them, students will do many of the things that some educators presume they will only do if a teacher inspires them. Again relationships matter—but the peer-to-peer cultures we build through the norms students perceive are at least as important.

## PRINCIPLE 5: TEACHING WELL IS RELATIONSHIP BUILDING

A common belief among teachers is that they must build relationships with students before they can make progress teaching them. “Students won't care what you say,” an oft-repeated aphorism goes, “until they know that you care.” The presumption is that students can't learn from someone who doesn't care about them and the result is often teachers seeking to connect with students and show their caring *so they can teach them*. That statement is informed by good intentions, but still mistaken in important ways. Should students know and feel that we care about them? Absolutely. Do relationships matter? Yes, of course—often immensely. But the assertion that no teaching can happen until a relationship exists is inaccurate,<sup>19</sup> 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.

Recognizing that relationships matter is the easy part in other words. The difficult questions come after: relationship building what kinds of relationships—and relationship-building actions—are most helpful? Is the aphorism about students knowing you care a rationale for any and all relationship-building actions? Some students might be quite happy if you were to show up at their dance recital or stop them to chat about their home life in the hallway. Others might find this strange and even invasive. This should remind us that we can understand that relationships are important and still take steps to develop them that are counterproductive.

So, while affirming the deep importance of relationships, here are some observations about them.

First, we are teachers to our students. We seek a specific kind of relationship that is unique to our role. Those relationships “are based on trust,” ResearchEd founder Tom Bennett wrote recently. “Trust is best built in safe calm ordered environments where adults can be relied upon to be dependable. Trust is built on predictability of action and character,” Bennett

noted.<sup>20</sup> Being reliable, humane, and consistent is the center of relationships. But learners also must feel that the environment in which they learn communicates these things. When a student talks about her relationship with Ms. Smith she in some ways means Ms. Smith's classroom. She will not come to trust Ms. Smith if Ms. Smith allows her to be subtly mocked by peers when she speaks, or if Ms. Smith is unable or uninterested in making sure the time spent in her classroom feels valuable and productive. Trust for a teacher is in part an affirmation of their competence and diligence in building the right environment.

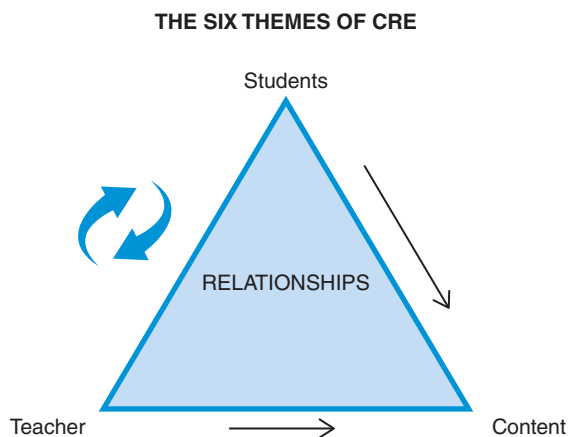
Second, successful teaching is at least as much the cause as the result of effective relationships. At a minimum the process is iterative. You demonstrate your respect for and belief in students by putting their time to good use. You show that you are worthy of their respect by creating a productive learning environment. As you do this you are warm, encouraging, and welcoming. You now have begun a relationship. It may form the foundation for a greater connection with some students; with others it will be sufficient. Chatting after class about your favorite shows with students is nice but not required and can distract you from the job at hand, teaching well, which is the primary tool by which teachers build relationships with students. "A relationship is a tool that helps students understand how to connect to the content," Adeyemi Stenbridge writes in *Culturally Responsive Education in the Classroom*. It's supposed to be about them and what will help them learn and thrive, in other words, and that's a key reminder because teachers' needs are also met by relationships. 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.

A skeptical reader once observed about previous editions of this book: "You don't have a chapter about relationships, You must not think relationships are important." *But to me the whole book is about building relationships.* A teacher who observes her students carefully, who notices and responds effectively when they struggle, and helps them see that they can be successful, is building relationships in a way that is not achieved by a teacher who gets frustrated and tells students to "figure it out." Or even one who warmly and lovingly greets them every day but fritters away time in activities they know don't result in learning. 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.

I recently came across a list for teachers on a popular website: "Ten Ways to Build Relationships with Students." It included some good advice ("Apologize when you mess up") but also some more questionable guidance: "Do crazy things," "Talk to them about non-school-related subjects," and "Share inspirational stories from your life," it advised. It's worth considering whether those actions can be distractions from more important things.

Talking to students about unrelated subjects is fine—some may appreciate it—but not nearly as important as talking to them about school-related subjects. Sharing inspirational stories might be fine, but proceed with caution. My own children have heard mine many, many times now and it's possible they don't find them to be quite the touchstones I do. One teacher I knew in school could reliably be counted on for a twenty-minute digression if you got him going on his stories. I'm not sure how many relationships were built but his interest in telling them would reliably result in the test being pushed back by at least a day. As for doing "crazy things," it risks as much harm as good. You're a teacher, not a performer. It makes more sense to spend your time preparing to teach really well, with warmth, humanity, attentiveness, and encouragement. The real question is whether you can inspire young people by awakening their curiosity and opening the doors of knowledge to them.

The relationship we want is at least in part a triangle, with the teacher connecting to the student about content and with the goal of inspiring them to build a relationship to the things they learn. The following illustrates how Adeyemi Stenbridge expresses that.



"I'm just not sure you can say you can build relationships with students unless you teach them well," my colleague Darryl Williams said after we watched a video in our offices one day. (I'm going to show you that video in a moment.) I went home that night and thought long and hard about that statement because at first it appeared to be false. Of course you can have good relationships with students if you don't teach well. Darryl's statement was the opposite of the oft-repeated quotation. He was suggesting that students won't know you care until they know you can teach them well.

But over time I came to see Darryl's observation operating in many of the videos in this book. In the one that prompted his comment *Denarius Frazier: Remainder*, Denarius

circulates among students in his class giving them feedback on their math. “Killing it,” he says to one student to reaffirm her progress. “Much better,” he says to another. Consider that tiny phrase for a moment. Much better than what? Much better than the last time you attempted problems like this. What this says is: *I see you as you work. Your progress is important to me.* And in the case of a teacher as good as Denarius, *I’m going to help you to succeed.*

Denarius speaks to *everyone* as he works the room and he speaks to them *about their academic work*. Over and over, the message is *I know you; I will help you*. There could be flashier videos about connecting with students, but there probably aren’t many more substantive videos about building relationships.<sup>21</sup>

Denarius’s students love and respect him because of how he *teaches* them. This is how he builds core relationships. Fittingly, I have taken this video of Denarius from the chapter on “Checking for Understanding.” What that tells you is that to know and care deeply about your students’ progress is relationship building and that each aspect of the core job of teaching in which a teacher evinces skill with humanity and warmth forms the foundation of relationships.

Part of the argument here is about where to focus our energy. It is easy to assume that if relationships are beneficial, then the more extensive the relationship, the better. But it’s not that simple. Some of us may play the role of mentor to some students in our lives—if we do, the benefit is at least half ours—but students do not need to see you as a confidant. Some students may appreciate that you care in a manner that involves chatting with them in the hallway or encouraging them to come to you with details about their personal lives and even sharing their difficulties. But plenty of them have no interest in or need for that. They are waiting for you to teach them with care and humanity. Believing that relationships start with our playing some meaningful role in students’ lives other than being their teacher can distract us from the fact that classroom relationships begin with our competence as teachers.

On the first day you should smile, welcome students, and put their time to good use. As you do so, make a point of beginning to learn names. Or perhaps you’ve already begun this process before students arrive and can surprise them by knowing their names and how to pronounce them. Tiny moments of humanity sprinkled in—You’re Damani’s sister, right? How’s he doing? Say hello for me!—can be powerful, but as much or more of relationship building is being prepared for class, demonstrating the capacity to help students succeed, even if they have struggled in the past, and doing that with enough skill that you can smile and encourage students. Students will be looking to see that you will take their learning seriously, that you can do your job. It’s hard to smile and encourage students when some are ignoring your directions or distracting you and their peers, for example. Not being able to run the room is one of the fastest ways to lose the respect of students. They may still be

friendly with you, knowing your lessons are simplistic or you are easily manipulated by mischievous classmates, but those relationships are not ones that lead to learning and growth for young people.

As you teach, endeavor to show that you like your students as much as you can in simple, subtle ways. Smile, for example. As Jo Facer puts it, “Everything is easier when students think you like them.” Students knowing that you care about them does not mean that you are friends. 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. Again, if you can build an environment where students are on task, work hard, and treat you and all of their peers with respect and appreciation it’s much easier to be positive, warm, and encouraging.

Let me try to frame this distinction with vocabulary. There are *supplementary relationships*—connections with certain students about their lives outside the classroom—and *core relationships*—positive, mutually respectful relationships in the classroom that help to ensure students’ learning and growth with warmth and humanity. I am not dismissing supplementary relationships. Many teachers have played profound roles in students’ lives; they can be valuable to young people and gratifying to teachers. I hope you will experience a few in your life. But it is a trap to presume that supplementary relationships are a requirement of success, when it is core relationships that do the work. Seeking the former too ardently can detract from the latter.

So what is a core relationship like? It is one in which students feel, as my colleague Dan Cotton frames it, *safe*, *successful*, and *known*. That is, their teacher sees them as an individual, has the competence to ensure that they will learn, and provides an environment where they need not worry.

*Safe* is perhaps easy to overlook when we think about relationships. It means students must not only feel like they won’t be bullied or mocked but that they will be respected and appreciated. Students must be able to take intellectual risks without fearing chastisement or judgment—from you or from their peers. Their relationship is heavily influenced by their sense of belonging within the class. If you smile after a student answers and show appreciation for her thinking but allow her, within the space under your authority, to be snickered at or the subject of eye-rolling, or if the moments when she reveals her intellect are met with disinterest and silence from the class, your relationship will not likely flourish. If it does it will be a Pyrrhic victory. Successful relationships require teachers to make use of the authority vested in them 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. You can tell Melissa you loved her comment

after class all you want. If she knows that during class she will be an object of strange curiosity every time she makes a similar comment, she will be less likely to feel the trust in you that relationships require.

*Successful*, as I have tried to explain throughout this chapter, derives from your overall effectiveness at the core tasks of teaching. When you do those tasks well, students see themselves progressing and succeeding, and this causes them to feel trust and appreciation. A corollary: Helping students to feel successful and to see convincing evidence of their own progress also helps to build relationships.

But what about the idea of students feeling *known*? Let's say you have a student. Let's call her Elicia. She'd like to know that you see her as unique, different from Candace to her left and Edward to her right. Begin by knowing her name and how she likes to say it (EE-lee-cee-ah rather than Uh-lee-sha). Use her name whenever you can: Every time you use a student's name you remind her that you know her. Perhaps you've got a couple of simple downtime questions you ask for when she and other students are first to arrive to class: *Morning Elicia. Everything go OK on the homework for you?* Perhaps occasionally you even *Cold Call* Elicia to show that you are thinking about her experience in class. "Elicia, you feel confident at these problems?" "Elicia, were you convinced by Kennedy's argument?"

In doing these things you have begun to establish that Elicia is an individual to you—one whose opinion you care about. I had a colleague once, a math teacher, who loved to learn little details about each student and drop them into playful word problems: If Elicia loved Beyoncé he would write, "Elicia wants to build a platform for the Beyoncé statue she has created in art class. Its dimensions are . . ." Great, if that's you, but you don't need a bag of tricks like that. It's more important to know Elicia as a learner, to walk by her desk and say, "Don't rush, Elicia. Your last paper was good because you took your time." Your statement shows that you remember her last paper. That you know what she is capable of. That you know and care about her progress. That you see her as an individual, in other words. This most of all is what young people crave and deserve.

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—without strong social networks or parents who can support you, for example. I wish to go on record stating that of the 100 best parents and guardians I have met in my life, 99 of them have been parents who were raising their children with limited financial means, sometimes in real financial difficulty, and who provided their children with exemplary love, support, guidance, and wisdom nonetheless. Many students have people they can confide in and share their lives with, in other words. 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 from someone who cares about their progress in doing so. This is nonnegotiable. Do some students lack relationships in their lives and yearn for an adult who can be a confidant or a mentor? Sure, some do. These students come from every socioeconomic stratum. A few times we may meaningfully provide supplementary support for a student whose social network does not provide everything they need, but it is also easy to convince ourselves that a relationship that makes *us* feel important and needed is the one that most students need and this may not be the case.

So how might getting relationships right play out in the classroom? Here are some initial thoughts. You will surely find more.

The first step to relationship building, I have intimated, may be the opposite of what you expect: making your classroom an orderly place where the procedures for doing everyday things are familiar and happen as if by routine. When students also have a very clear mental model of the behaviors required in a productive classroom, it will be easier for them to do those things with at most small reminders. Further, *safe, successful, and known* starts with *safe*—that is, with a learning environment where students can struggle and will never be mocked or laughed at. Young people should be able to rely on adults to provide such a setting for them to learn in, and to provide it is a form of caring. Better for you to provide an orderly classroom where students encourage one another than to fail to do so and spend your time as the lone voice encouraging students. Further, an orderly classroom will allow you to listen to and attend to what students say and to focus on understanding each child as a learner. Denarius's classroom is a relational place, first and foremost, because it is orderly.

Lesson planning and preparation are also critical to relationships—and again, perhaps unexpectedly so. A well-planned and well-executed lesson tells students that they matter and their learning is at the forefront. And an engaging and energetic lesson draws students in. Watch a few moments of Sadie McCleary's chemistry class at Guildford East HS in Guildford, North Carolina. Students are happy *because* they are busily engaged in meaningful work throughout; because when they walk in the room the chemistry lesson starts right away and has them thinking deeply and actively from the first minute. This is arguably more gratifying than walking into a classroom where a teacher spends the first five minutes asking everyone how they're doing.

In his book *The Happiness Advantage*, Shawn Achor reminds us that there are several parts to the concept of happiness. Accomplishment (seeing your own progress) and engagement (losing yourself in something) are critical components of happiness—as powerful as pleasure in causing happiness, even if far less often acknowledged. There's a cycle here:

Students are happy when they are productive and engaged and that makes them feel trust and increases their openness to meaningful relationships. Further, when you know your lesson well and aren't thinking of what question to ask on the spur of the moment, you can be more responsive and observant; your working memory can be employed in perceiving how students are reacting to the work and how effective their answers are. Quite simply, you are more present.

Relationships are often based on the mastery of a dozen tiny skills from across the chapters in this book. A small element of the technique *Positive Framing* called Assume the Best is a game changer, for example. As with all of *Positive Framing* it will help you to give students the constructive feedback they deserve in a way that reminds them that you care about them and believe in them. Furthermore, it asks you to construct plausible reasons for low-level unproductivity. “Sorry, my directions weren’t clear; this is a silent writing activity; I wanted this to be a *silent* writing activity,” is a big improvement on “It needs to be silent in here.” It exudes calm and poise and shows students that when they don’t follow direction your first instinct is to think: *Well, there must be some reason for that*, and it also causes you to consider and then verbalize some of these reasons, some of which will often turn out to be right. Sometimes it will just be lack of focus by the class; but sometimes you will *not* have been clear. When you make a habit of seeing the best in your students you are more likely to notice it when it is present. *What to Do* is another example. Nothing corrodes relationships like not being sure what you’re supposed to be doing—times ten if it happens over and over and nobody gets much done, and times ten again if students get “spoken to” for not following a direction that’s not clear to them.

## Notes

1. If you’re new to TLAC and don’t follow all the wherefores and whys here, don’t worry. You can get full explanations of all the terms and variations in *Cold Calling* (technique 34) in Chapter Seven.
2. I am just showing you how to be hilarious in an ironic, talking-to-teenagers kind of way with this comment about the Kardashians. I actually have no idea who the Kardashians are—I only know they’re famous. Also, if you’re wondering about taking advice on humor from me, my teenaged kids tell me I’m truly hilarious (“OMG, Dad, you’re so hilarious” [insert withering stare]).
3. <https://eric.ed.gov/?id=ED298122>
4. <http://web.stanford.edu/~gentzkow/research/radiology.pdf>.
5. <https://www.aft.org/sites/default/files/periodicals/WILLINGHAM%282%29.pdf>.

6. Paul A. Kirschner, John Sweller, and Richard E. Clark, “Why Minimal Guidance During Instruction Does Not Work: An Analysis of the Failure of Constructivist, Discovery, Problem-Based, Experiential, and Inquiry-Based Teaching,” *Educational Psychologist* 41, no. 2 (2006): 75–86. <http://mrbartonmaths.com/resourcesnew/8.%20Research/Explicit%20Instruction/Why%20minimal%20guidance%20instruction%20does%20not%20work.pdf>.
7. This is the difference between “performance” and “learning.”
8. And of course you can only look up what you already know is relevant and connected.
9. Graham Nuthall, *Hidden Lives of Learners* (NZCER Press, 2007), p. 69.
10. Baumeister et al. proposed this concept in a 1998 paper in the *Journal of Personality and Social Psychology*, “Ego Depletion: Is the Active Self a Limited Resource?” They found, for example, that “people who forced themselves to eat radishes instead of tempting chocolates subsequently quit faster on unsolvable puzzles than people who had not had to exert self-control,” and that “an initial task requiring high self-regulation made people more . . . prone to favor [a] passive-response option.” Some further research has challenged their findings.
11. David T. Neal, Wendy Wood, and Jeffrey M. Quinn, “Habits—A Repeat Performance,” *Current Directions in Social Science* (August 1, 2006), [https://dornsife.usc.edu/assets/sites/545/docs/Wendy\\_Wood\\_Research\\_Articles/Habits/Neal.Wood.Quinn.2006\\_Habits\\_a\\_repeat\\_performance.pdf](https://dornsife.usc.edu/assets/sites/545/docs/Wendy_Wood_Research_Articles/Habits/Neal.Wood.Quinn.2006_Habits_a_repeat_performance.pdf).
12. Nuthall’s research involved taping and studying a sample of students during each lesson. He was mostly uninterested in what the teacher did and very interested in what students did and how it affected their learning. Many of his most interesting observations come from moments when we hear the children, whom he has miked, talking to themselves after an interaction with a teacher, for example.
13. [www.researchgate.net/publication/225304965\\_The\\_role\\_of\\_selective\\_attention\\_on\\_academic\\_foundations\\_A\\_cognitive\\_neuroscience\\_perspective](http://www.researchgate.net/publication/225304965_The_role_of_selective_attention_on_academic_foundations_A_cognitive_neuroscience_perspective).
14. Ironically for a computer scientist, he has managed to achieve this himself by dramatically restricting the presence of technology, with its strong tendency to fracture and distract his concentration, as the title of another of his books, *Digital Minimalism*, suggests. (I recommend both it and *Deep Work*.)
15. The phrase was coined by Sophie Leroy at the University of Minnesota, based on her research on workplace productivity.
16. <https://hbr.org/2018/03/to-control-your-life-control-what-you-pay-attention-to>.
17. The other is—yup, you guessed it—the naked mole rat. They, too, will sacrifice unto the last full measure of devotion for one another. But God bless the little fellas, I don’t

mind being outshone by them one bit—they're miraculous and quirky in a dozen ways. Also—honestly—they're funny looking and don't smell great. Let them have eusociality to brag about, I say.

18. Peps Mccrea, *Motivated Teaching: Harnessing the Science of Motivation to Boost Attention and Effort in the Classroom*, p. 74.
19. Everyone learns from people without having strong relationships. You have and will again have to learn many times in settings where the teacher did not know you from Adam—a large lecture in your university days or a Khan Academy video are examples. Obviously, as teachers we want to build relationships that help students thrive but it's important to be clear that everyone can and will have to learn in situations where a relationship doesn't exist at different times throughout their lives.
20. Tom's remarks were made in a series of tweets on March 5, 2021.
21. You've probably seen videos on the Internet of teachers who give each child their own distinctive greeting at the door. Arrival is a celebration of personalized handshakes and fist bumps. I find them lovely too. If you want to be that teacher, wonderful, but recognize that thousands of teachers build enduring relationships with students without those moves and, furthermore, the results are only likely to be substantive and enduring if you also teach well, your students feel safe, and you let them know that you see them for who they are.

