Teaching The long read

# The revolution that could change the way your child is taught

## Doug Lemov believes great teachers are made, not born – and his ideas are transforming education

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The video does not seem remarkable on first viewing. A title informs us that we are watching Ashley Hinton, a teacher at Vailsburg Elementary, a school in Newark, New Jersey. Hinton, a blonde woman in a colourful silk scarf, stands before a class of eight- and nine-year-old boys and girls, almost all of whom are African-American. "What might a character be feeling in a story?" she asks. She repeats the question, before engaging her pupils in a high-tempo conversation about what it is like to read a book and why authors write them, as she moves smartly around her classroom.

On an October morning last year, I watched Doug Lemov play this video to a room full of teachers in the hall of an inner-London school. Many had brought their copy of Lemov's book, Teach Like a Champion, which in the last five years has passed through the hands of thousands of teachers and infiltrated hundreds of staffrooms. To my eyes, the video of Hinton's lesson was a glimpse into the classroom of an energetic and likable teacher, and pleasing enough. After leading a brief discussion, Lemov played it again, and then a third time.

Here is what Lemov sees in the video: he sees Hinton placing herself at the vantage points from which she can best scan the faces of her pupils ("hotspots"). He sees that after she first asks a question, hands that spring up immediately go back down again, in response to an almost imperceptible gesture from Hinton, to give the other children more time to think ("wait time"). He sees her repeat the question so that this pause in the conversation doesn't slow its rhythm.

He sees Hinton constantly changing the angle of her gaze to check that every pupil is paying attention to whoever in the room is speaking, and silencing anyone who is not doing so with a subtle wave of her hand. He sees her use similar gestures to gently but effectively recall errant students into line without interrupting her own flow or that of the student speaking at the time ("non-verbal corrections"). He sees Hinton venture away from the hotspots to move down the sides of the class, letting her students know, with her movement, that there is always a chance she will be beside their desk in the next few seconds. He sees that in one particular instance she moves toward a particular student while making it look to the rest of the class as if she is simply changing her perspective, so that she can correct his behaviour without embarrassing him – and he sees that she does so with the grace of an elite tennis player delivering a disguised drop shot.

He sees that Hinton is smiling throughout, beaming warmth to her class, and varying the volume of her voice to convey enthusiasm for her topic. He sees that children from one of the poorest neighbourhoods in America – children who elsewhere might have been tacitly expected to misbehave, or to withhold their attention from a class on English literature – are utterly captivated, eager to pitch in with their own thoughts, avid for learning. He sees, finally, that behind this self-effacing display of apparently effortless mastery there are thousands of hours of deliberate, carefully considered practice.

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**Lemov never considered himself a brilliant teacher**. When he taught at a school in a poor neighbourhood of Boston, he enjoyed training days, and left them eager to apply what he had learned in planning the next day's lessons. Then the next day arrived, and his plan collapsed: instead of inspiring kids with his enthusiasm for English or history, he spent his time imploring them to be quiet when he was talking and to stop throwing pens.

In the staffroom one day, a more experienced colleague gave him a piece of advice. "When you want them to follow your directions, stand still. If you're walking around passing out papers it looks like the directions are no more important than all of the other things you're doing." This was a revelation.

It was exactly the kind of guidance – clear, practical, precise – that Lemov had been missing. And it worked.

Lemov, who has an MBA from Harvard, likes precision, and he likes to break a problem down into its component parts before putting together an answer. That was how he set about solving the problem of becoming a better teacher, and it is also how he thinks about the problem that preoccupies him more than any other: closing the "achievement gap" between poor students and everyone else. In fact he has come to see the two problems as inextricably linked.

After leaving the school in Boston, Lemov worked for a time as a consultant to failing schools. He came to realise that although he might be able to help them implement better assessment systems, or to use technology more effectively, nothing would work unless the teachers got better at helping the children learn. How could he help with that?

Characteristically, he started with a spreadsheet. Cross-referencing test scores and demographics, he identified which schools were achieving the most exceptional results with poor students. Then he visited the classrooms of the best teachers in those schools with a videographer. He watched and rewatched the lessons he recorded, like a football coach studying the tape of a game, analysing in minute detail what these outstanding teachers were doing. He gave names to the techniques he saw them use. Then he circulated his notes to the teachers he worked with.

Those teachers passed them on to teachers they knew, who passed them on in turn, until the document, known at that time only as "the taxonomy", took on a samizdat life of its own. Lemov realised how far word of it had spread when a teacher from California got in touch to request a copy. In 2010, he was persuaded to turn his notes into a book, which became a surprise best-seller in education circles. In its latest edition, Teach Like a Champion lists "62 techniques that put students on the path to college". Lemov says that some of the advice in the book is probably wrong, and he does not pretend it is comprehensive. But it has become the key text of an incipient transformation of teaching that has little to do with government edict or official policy.

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**Hardly anything matters more than education**, yet when we talk about education we spend a lot of time arguing over things that do not matter very much. Class sizes, uniforms, curriculum design, which politician runs the Department for Education – none of our favourite flashpoints make a lot of difference to whether children do well at school. For all that parents worry over which school to send their children to, more important is who teaches them when they get there. Professor John Hattie, of the University of Melbourne, has undertaken a rigorous assessment of the thousands of empirical studies that have been carried out on educational achievement. He concluded that, other than the raw cognitive ability of the child herself, only one variable really counts: "What teachers do, know and care about."

The evidence suggests that a child at a bad school taught by a good teacher is better off than one with a bad teacher at a good school. The benefits of having been in the class of a good teacher cascade down the years; the same is true of the penalty for having had a bad teacher. Such effects do not fall evenly upon the population: the children who gain most from good teachers are those from disadvantaged homes in which parental time, money and books are in short supply. Being in the classroom of a great teacher is the best hope these children have of catching up with their more fortunate peers.

In 1992, an economist called Eric Hanushek reached a remarkable conclusion by analysing decades of data on teacher effectiveness: a student in the class of a very ineffective teacher – one ranked in the bottom 5% – will learn, on average, half a year's worth of material in one school year, whereas if she was in the class of a very effective teacher – in the top 5% – she would learn a year and a half's worth of material. In other words, the difference between a good and a bad teacher is worth a whole year.

**"A child at a bad school taught by a good teacher is better off than one with a bad teacher at a good school"**

Hanushek's proposed solution to the question of how to raise educational standards was brutally simple: fire the worst 10% of teachers and replace them with better ones. Education reformers in America used his findings to argue that schools should have more power to sack under-performing teachers and attract better ones with higher salaries. This "accountability" movement, backed by politicians such as Barack Obama and philanthropists including Bill Gates, has been closely associated with the rise of charter schools in the US and academies in Britain. But it has turned out to be a lot harder than reformers initially envisaged to raise standards. Performance pay has had mixed results, and it has proven difficult to systematically separate good and bad teachers. The reformers can point to some striking successes, but overall, children at charter schools and academies are no more likely to do well than children at run-of-the-mill schools.

Meanwhile, teaching unions on both sides of the Atlantic have stubbornly resisted attempts to differentiate between effective and ineffective teachers – and they are quick to level accusations of "teacher-bashing" at those who attempt to do so. This is understandable. Politicians can take an unholy glee in berating "bad teachers", and you do not have to be paranoid to see such rhetoric as a thinly disguised attack on the whole profession. On the other hand, given that teaching is such a demanding and complex job, it would be bizarre if there was not a wide gap between the best performers and the worst.

Globalisation has increased the pressure on education systems to improve, but the pressure is now coming from the bottom up too. The rise of charter schools and academies has precipitated a Cambrian explosion of new ideas and innovations, stimulating a debate about methodology led by teachers themselves. The internet has provided platforms for teachers to talk to other teachers, beyond their own schools and outside official oversight. On social media, teachers are sharing ideas, evidence and techniques, organising conferences on education research, and arguing about the most effective way to teach reading or maths.

After years of debate among academics and politicians over how to raise teacher standards, the problem is being solved by the practitioners. And it has become apparent that the noisy argument over "bad teachers" was drowning out a much better question: how do you turn a bad teacher into a good one?

And what makes a good teacher good?

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**In 2010, the Los Angeles Times** triggered a minor earthquake in a city familiar with such events. The Los Angeles school district – the second largest in the United States – had collected detailed data on the performance of its roughly 6,000 teachers, that it had not released. The newspaper used a freedom of information request to get its hands on this database, and after conducting an analysis, published a list of all the teachers in Los Angeles, ranked by effectiveness. It turned out that the very best teachers were getting results that were not only much better than low-ranked teachers, but twice as good as good teachers. At the very top of the list was a woman called Zenaida Tan.

Tan taught at Morningside Elementary, a decent if unremarkable school with an intake of mainly poor students, many of whom struggled with English. Year after year, students were entering Tan's class with below-average ability in maths and English, and leaving it with above-average scores. You might imagine that before the Los Angeles Times published its rankings, Tan would have already been celebrated for her ability by her peers – that her brilliance would be well-known to fellow teachers eager to learn her secrets. You would be wrong on all counts.

When the Los Angeles Times sent a correspondent to interview Tan, they found her quietly carrying out her work, unheralded except by those who had taken her class and knew what a difference it had made to their lives. "Nobody tells me that I'm a strong teacher," Tan told the reporter. She guessed that her colleagues thought her "strict, even mean". On a recent evaluation, her headmaster noted she had been late to pick up her students from recess three times. It was as if Lionel Messi's teammates considered him a useful midfielder who needed to work on his tackling.

There is entrenched resistance, in the education establishment, to singling out individuals, even to praise or emulate them. The only options for Tan's evaluation were "meets standard performance" and "below standard performance". But if Tan and others like her go unnoticed it is also because they do not look the part. Ask someone to describe a great teacher, and they are likely to conjure up someone like Robin Williams in Dead Poets Society: eccentric, flamboyant, prone to leaping on to desks. When we see a teacher effortlessly commanding her class's attention, our instinct is to put it down to some quality of their personality – great teachers, it is said, just have something. They are possessed of an innate ability to inspire.

Sam Freedman, the head of research at Teach First, which places high-achieving graduates into schools with disadvantaged intakes, said that even among teachers, there is hostility to the notion that what they do can be analysed and replicated: "The idea of learning heuristics seems bad because you're not discovering your inner teacher." But the myth of the magical teacher subtly undermines the status of

teaching, by obscuring the extraordinary skill required to perform the job to a high level. It also implies that great teaching cannot be taught.

At training college, budding teachers learn theories of child development and are told about the importance of concepts such as "feedback" and "high expectations". But they get surprisingly little help with actual teaching. Imagine being told you need to show high expectations of your students. "It's like telling a kid to get better GCSEs," Jenny Thompson, a teacher at Dixons Trinity Academy in Bradford, told me. The reason teachers respond so enthusiastically to Doug Lemov's ideas is that he is right there with them at the front of the class.

Tall and wide-chested, Lemov is built like an American football player. In fact, his favourite sport is soccer, which he played at college in upstate New York. His coaches there did not spend much time discussing the game in the abstract. Instead, they told him to "narrow the angle" or "close the space". In his books and workshops, Lemov talks about what pace to move around the classroom, what language to use when praising a student, how to adjust the angle of your head to let students know you're looking at them. Teaching, he says, is "a performance profession".

Sports coaches know that what looks effortlessly achieved, like the way Roger Federer hits a backhand, is in fact the product of countless hours of practice and analysis. Faced with a problem – a weakness in their game – they break it down into parts and work on the execution of each one before putting it all back together. Successful sportspeople have what the psychologist Carol Dweck calls a "growth mindset" – the belief that talent is intelligently applied effort in disguise. The ones who understand this principle best are those born without the supreme talent of a Federer – the ones who have had to strive for every millimetre of improvement.

The best teachers do not necessarily understand how teaching works, because their own technique is invisible to them; sports psychologists call this "expert-induced amnesia". When the Los Angeles Times asked some of the teachers who topped their list what made them so effective, one replied that great teachers simply love their students and love their job: "You can't bottle that, and you can't teach it."

Doug Lemov is on a mission to prove that talented teacher wrong.

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**At Lemov's workshop, the teachers rehearsed asking questions** and taking answers – not something I had imagined would require practice. A few minutes earlier, Lemov had cited research that found the average time a teacher leaves between question and answer is 1.5 seconds. That is not enough, he said. The teachers, all of whom had several years of experience, agreed. As they discussed why, I began to understand something about how absurdly difficult the job is, and the fundamental reason for its difficulty: thinking is invisible.

Imagine you're a teacher, standing in front of your class. You ask a question: "What was the immediate cause of the first world war?" Three hands go up immediately. You decide which one to pick. "OK, Leon." Leon gives the answer you taught last week: the assassination of Archduke Franz Ferdinand.

Things are going well, aren't they? But what if there is a child in the third row who was on her way to getting the answer right but gives up the moment she sees Leon raise his hand? What if there is another student, in the back row, who does not even bother thinking any more because he knows Leon always gets there first?

Lemov played a clip of a teacher called Maggie Johnson. Johnson asks her class: "What does Atticus say about mockingbirds?" After leaving a gap of several seconds, she takes an answer. Lemov played the clip again and this time, with the help of the teachers in the room, he dissected Johnson's technique – showing how she used "wait time" to enact high expectations and make everyone in her class feel they might have an answer worth sharing. Before she has even finished asking the question, one boy has his hand up. Johnson waits. Two more hands go up. Johnson walks slowly across the front of the classroom, smiling, her gaze criss-crossing the class, as more and more hands spring up. Her movement, and her smile, dissipates any tension before it arises, either in herself or her students.

Another lesson that Lemov learned from his football days was that if he really wanted to improve, playing in matches was not enough. He needed to practice techniques and routines, preferably with teammates. Teachers like Maggie Johnson have honed their skills outside the classroom, in countless coffee-fuelled staffroom sessions with colleagues. This means they are able to execute classroom routines with the minimum of conscious effort, leaving them free to concentrate on the headspinning complexities of tracking which child has understood what, and who needs what kind of help.

The rhetoric of "bad teachers" and "good teachers" not only reinforces the perception that teaching ability is a gift someone either has or does not have, it also undermines the kind of informal collaboration Lemov advocates (a problem with linking pay to performance is that it

incentivises teachers not to help each other improve). Indeed, the set-up of most schools is inimical to collaboration. In a hangover from the days when monks taught in cells, the most important work in a traditional school is done behind closed doors, by individuals separated from their peers (educationalists call it the "egg crate model"). As a consequence, teachers have never developed a shared vocabulary for discussing their work in detail. One reason they enthuse over Teach Like a Champion is that it offers one. A teacher at the workshop told me: "I can say to my colleagues, 'Have you tried cold calling? And they immediately understand what I mean. That makes a huge difference."

Lemov played the video of Maggie Johnson a third time, and paused it about two-thirds of the way through. He pointed to a girl in the front row, slight and bespectacled, with her hair in neat plaits. At a point when most of the class have their hands in the air, hers is still down. Her teacher waits. The girl stares intently at her notes. Her hand creeps up to her neck, and goes down again. Her teacher is still waiting. The girl puts her hand up, this time with conviction, and this time she holds it there.

Lemov is wary of big ideas and educational philosophies. Most of the tools in Teach Like a Champion, he says, remain beneath the notice of theorists of education. But he does have a philosophy, even if he wouldn't call it that. One of its tenets is that teachers need to maximise the amount of thinking and learning going on in their classroom at any one time, and to ensure that this effort is widely distributed.

Take "cold calling". Instead of asking a question of the class and then picking a hand, you call on a student regardless of whether they have raised their hand. It sounds too simple to be significant. But, to use one of Lemov's favourite phrases, cold calling is "a small change that cascades". Cold calling enables the teacher to check on the level of learning of any student in the class; it keeps the pace of the lesson high, because the teacher no longer has to wait for volunteers; it makes the teacher look more authoritative. Crucially, it increases the amount of thinking going on in the classroom at any one time because everyone knows the next question might be for them.

Another of Lemov's tenets is that mundane routines can have magical effects. He often opens his sessions by showing a clip of a teacher called Doug McCurry at Amistad Academy in New Haven, Connecticut – another school that achieves exceptional results with underprivileged students. McCurry is instructing his pupils, on their first day at school, on how to pass out papers. Though it happens several times every hour of teaching, it is not the kind of thing you get taught at training college.

McCurry takes a minute to explain how he wants it done (pass across rows, start on his command, only the person passing gets out of his or her seat). Then he has his students practice it while he times them with a stopwatch. "Ten seconds. Pretty good. Let's see if we can get them back out in eight." When Lemov plays this clip, many teachers are sceptical. Why is McCurry focusing on this menial task? Is he trying to turn his students into automatons? Quite the opposite, says Lemov. Assume that the average class passes papers out or back 20 times a day, and that they take 80 seconds to do it. If McCurry's students accomplish this task in 20 seconds, they will save 20 minutes a day. The school has increased its most precious asset – teaching time – by 4%, without any spending any more money.

In case that sounds like arid managerialism, consider what it means in practice: 20 minutes not spent passing papers back and forth is 20 minutes that a child who grew up in a home with no books can spend learning about how Charles Dickens uses imagery; 20 minutes not shuffling paper is 20 minutes that a girl who believes she is hopelessly bad at maths can be taught how to calculate the area of a circle. Over a school year, those minutes add up to eight school days: time for a whole unit on 20th-century poetry or coordinate geometry; time enough to get hooked on the life-expanding pleasures of learning difficult things.

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**Gareth Cook, a slender young man with feline eyes**, is watching himself, on a laptop screen, address a group of 12-year-old boys sitting on artificial grass, clutching footballs. In a crisply delivered speech, Cook, a former school teacher, explains to the children how to react when your team loses possession. When the video is paused, Cook sits back and says, "Too much talking." Next to him, Martin Diggle nods, pointing to a time code under the picture: "29 minutes of talking in a 90 minute session."

Cook is a junior coach at the academy of Liverpool Football Club. Diggle is employed by the Football Association to mentor club coaches, part of the FA's effort to raise the technical standards of the national game. Staff at top clubs do not generally relish being told how to do their job by the sport's governing body, but Diggle, an experienced coach possessed of a reassuring manner, is listened to. "My job isn't to tell them how to coach," he told me. "My job is to help them think about what they're doing."

Earlier in the day I watched Nick Marshall, the academy's head of operations, deliver an appraisal to another young coach. Topics included the importance of attending to the individual as well as the group, and how to make children want to follow rules rather than feel they have to. "As coaches, we tend to get obsessed by tactics," Marshall told me afterwards. "But instead of studying tactical diagrams until 3am, why aren't we reading Carol Dweck, or the neuroscience of the teenage brain?"

Just as sports coaches are becoming polymaths, teachers are adopting coaching's focus on constant, self-reflective improvement. Traditionally, teachers haven't necessarily been expected to get better at teaching once they have mastered the basics of the job. According to Dylan Wiliam, Emeritus Professor of Educational Assessment at the University of London's Institute of Education, and a former teacher, the evidence suggests that most new teachers improve for the first two to three years of their career, as they learn how to manage classroom behaviour, and then stop improving. "People make claims about having 20 years' experience," Wiliam told me, "but they really just have one year's experience repeated 20 times."

**People make claims about having 20 years' experience, but they really just have one year's experience repeated 20 times**

***Dylan Wiliam***

For years, British football coaching was stymied by a macho disdain for new ideas imported from the European clubs that regularly beat them in competition. In education, when Asian countries top international tables of achievement, we make derisory noises about hothousing. But the reason Shanghai's schools are recognised as among the best in the world is because their teachers never stop thinking about how to get better at teaching. When Marc Tucker, the president of NCEE, an American education thinktank, went to Shanghai, he discovered a system designed to elicit continual improvement. Staff meet once a week by grade and subject, and break into teams to work on problems of their choice – at one school, the teachers had rearranged their floor plan so that teachers from the same grade level shared an office. Every young teacher has an older mentor, of proven achievement, assigned to them. The Shanghai system, Tucker said, revolves around the premise that "not only is it possible for you to get better, it is your job to get better and it never ends".

Nick Marshall reminded me that there have always been forward-thinking football coaches in this country. But they are now more likely to find a home that makes the most of their talents, and to choose an employer on that basis. Similarly, ambitious teachers now want to work for a school that helps them improve, rather than one where they are so busy struggling to impose their will on the classroom that they cannot develop their skills. "You'd be amazed," Sam Freedman told me, "at how many schools there are where a teacher can discipline a child by sending him out of the room, only for the deputy head to pass by a few minutes later and send him back in." At successful schools, everyone abides by the same rules, while at the same time understanding that the rules are a means to an end. The best instil a hunger to learn, and not just in their pupils.

Introducing his workshop for educators, Doug Lemov showed a scatter graph, plotting achievement in maths, on the horizontal axis, against socioeconomic status on the vertical axis. Each dot represented a school in America. The dots clustered together into fuzzy but unmistakable line running from top-left to bottom-right: the poorer you are, the less likely you are to achieve the kind of education that might enable you to stop being poor. The same applies here: in England, if you are a high-achieving 11-year-old from a poor family, you are only 30% as likely to attend university as your richer peers.

After inviting us to consider anew the enormity of this grim truth, Lemov pointed to some stray dots that had escaped from the main cluster to find their own space. In these schools, children from poor neighbourhoods were doing as well or better than middle-class peers. If they can do it, he said, why can't any school? And why isn't every other school in the land scrabbling to find out what these schools are doing right, so that they can copy it?

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**Almost the first thing Jenny Thompson does** when I arrive at her school on a freezing Monday morning is to take me outside. "Come and stand on the step with me," she says, "This is what I do every morning." Thompson, 34, is senior vice principal at Dixons Trinity Academy, which Sam Freedman told me was the best school he had visited in England. It's early – before 8am – and night still lingers; I wonder if I should go back and get my coat. But now here come the children, some arriving alone, some in twos or threes, some grinning, some with heads down. Thompson has a word for everyone. "How are you this morning, Ahmed? Did you sleep OK, Shazia? Ben, have you recovered?"

Academies may not, on average, be better than regular schools, but the best ones are doing astonishing things. Shortly after he started videoing great teachers, Lemov co-founded a chain of charter schools. Uncommon Schools aims to help children born into poverty get to university. Its 40 or so schools, scattered across north-eastern cities such as Boston and New York, serve the urban poor, which means, for the most part, African-Americans. In a reversal of national norms, its black students outperform local white students in tests of maths and

reading, and consistently beat state averages, often dramatically so. Lemov's workshop in London was hosted by All Saints Academy, part of the Ark chain, whose schools are achieving similarly impressive results in underprivileged areas.

Dixons Trinity, which opened in 2012, draws its pupils from one of the most deprived parts of Bradford, a town yet to regain the prosperity it enjoyed in its industrial heyday. Around half of the pupils live in the city's five poorest wards. Many are the children of immigrants from Pakistan or India, and many do not speak English at home. But its students out-perform the UK average in English and maths, and the ones who enter Dixons Trinity with the lowest achievement levels do better than anyone else. This is a source of particular satisfaction to the school's principal, Luke Sparkes, who tells me that the school is designed around its most vulnerable pupils. "If you get it right with them, you get it right with everyone."

It is 8am now, five minutes before the start of the school day. Children tumble out of parental cars and run. Thompson reassures them: "It's OK. You're not late!" By 8.05 all the children are inside. It is an earlier start than at most schools, but the children's punctuality record – at Dixons Trinity, they keep data on everything – is almost 100%. "The thing is," Thompson says, "they want to be here on time."

Doug Lemov says his techniques work best when the pupils understand when and why they are being used; they are not intended to be secret weapons. The spirit of transparency permeates Dixons Trinity. When new pupils join they are asked to sign up – literally – to the school's values of "hard work, trust and fairness". After that, "we over-explain everything," Thompson says. There is no rule or routine, from being silent in the corridor to lining up in the playground after lunch, that isn't painstakingly explained and re-explained to the pupils. "We have high standards, and that means rules," Sparkes says. "But we don't want the kids to feel they have to kick against them, so they need to feel part of it."

I watch as Dani Quinn, head of maths, teaches her class how to calculate the area under a curve. She begins with an explanation of why they are doing the lesson at all, given that they covered the same material last week: "We know from research in psychology that when your brain is forced to retrieve something from memory, it sinks in deeper." When two girls start to whisper to each other as Quinn is talking, she silences them with a swift but detailed explanation of why she is doing so: "It means the others can't hear me properly, which prevents them learning, which isn't fair on them and damages the trust we have in each other. OK, so how do we calculate this value?"

Sparkes, a self-possessed 35-year-old from Liverpool, was at pains to stress that most of the school's practices are adopted from other good schools. "Very little of it is new," he told me, as we stood in the playground and watched two teachers line up the entire school as a post-lunch reset. "The only difference is, we do what we say." At Dixons Trinity, there is no single innovation or magical personality around which everything revolves, just a shared and relentless attention to better execution. That can make it a hard place to work. "You need a self-critical disposition to work here," said Thompson. On the other hand, there is pleasure to be found in obsessing over the details of an inexhaustibly interesting job. Dani Quinn describes herself as a "pedagogy geek".

On a table in Sparkes's office are copies of Teach Like a Champion. "We buy it for every teacher," he told me. At least two mornings a week, the teachers get together in a group or in paired sessions between younger and more experienced teachers. When I visited, they were focused on honing two of Lemov's techniques: "no opt out" – insisting, when a child gives an answer, that she repeat it until it is 100% correct, and "positive framing" – making critical feedback encouraging. Small things, said Sparkes, but teaching is complex, and in the classroom, "you need to have this stuff down so that you can think". Not to mention that for pedagogy geeks, this is fun.

What the teachers at Dixons Trinity tell the children, they apply to themselves: that it is vital to push yourself, that the road to mastery leads through hard work, that you should never stop trying to get better. Somehow, though, these imperatives do not sound like strictures. The school runs on rules, but it is animated by something else. In the videos that Doug Lemov shows, what impresses you is the teaching, but what moves you is the palpable joy that the students are taking in being taught. In the days after my trip to Dixons Trinity, what stayed with me was the image of Jenny Thompson, radiating bonhomie into the chill Yorkshire air, children rushing up the steps to school.

Before I leave, I ask Thompson where she finds the will to get out of bed at 5am every day; to work weekends and evenings; to endure the punishing constraint of thinking self-critically about everything she does. At least in sport or business, I suggest, there are prizes. "Oh, but I think it's easier for us to get motivated," Thompson says, noting that she was still paid less than the salary she was offered to join Goldman Sachs as a graduate trainee. She laughs. "I wouldn't work this hard if I was at a private school."

*Ian Leslie is the author of Curious: The Desire to Know and Why Your Future Depends on it.*