

# Optimizing Talent: Closing Educational Gaps Worldwide

How do we prepare students for a world we cannot imagine?



Dylan Wiliam, Institute of Education, University of London

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*Dylan William  
Institute of Education, University of London*

## Abstract

The educational achievement of a country's population is a key determinant of its economic growth, and so improving educational attainment is an urgent priority for all countries. A number of ways that this might be done have been attempted, including changes to the structure of schooling, to the governance of schools, and to the curriculum, and an increased role for digital technology. While each of these approaches has produced some successes, the net impact at system level has been close to, if not actually, zero. In this paper, I argue that the main reason that most system-wide educational reforms have failed is that they have ignored (1) the importance of teacher quality for student progress; (2) the fact that teacher quality is highly variable; and (3) that teacher quality has differential impact on different students. Teacher quality can be improved by replacing teachers with better ones, but this is slow, and of limited impact. This suggests that the future economic prosperity of each country requires improving the quality of the teachers already working in its schools. We can help teachers develop their practice in a number of ways; some of these will benefit students, and some will not. Developments with the biggest impact appear to be those that involve changes in practice, which will require new kinds of teacher learning, new models of professional development, and new models of leadership.

## Why do we need to improve education?

Measured on some of the most culture-free measures of intelligence, such as Raven's Progressive Matrices, today's children are—to a significant extent—more intelligent than their parents and their grandparents<sup>1</sup>. In most developed countries, a child just in the top 20% of the population in terms of IQ scores at the end of the second world war would today be regarded as below average in intelligence. Furthermore, the quality of teaching in government-funded schools appears to be higher than in private schools in most rich countries. This may seem a bold claim, but it is difficult to interpret the evidence in any other way. It is true that for most of the countries participating in PISA, the raw scores of students in private schools are higher than those attending government-funded schools, but of course this is not a fair comparison, because the students attending government-funded and private schools are not drawn from the same population.

In order to control for this, the PISA program collected information on the social class of the students, and of the schools they attended, and when these measures were used as controls for differences in the social class of students, the superiority of the private schools disappeared<sup>2,3</sup>. After controlling for social class, there was not a single country participating in PISA in which students attending private schools achieved higher scores than those attending government funded schools. When one adds in the fact that the class sizes in private schools are generally smaller than those in the government funded schools (average class sizes 19.4 and 21.4 respectively), then it is apparent that the quality of teaching in private schools is no better than in public schools

So if young people are so intelligent, and the teaching in public schools is at least as good as that in private schools, why is that employers are so unhappy? The answer is simple. Schools have improved, but the changes in the world of work have been even more extraordinary.

For example, the number of jobs not requiring qualifications in the UK economy has fallen by over 30% (from around 3 million to around 2 million) in just seven years<sup>4</sup>—to put this another way, between 2002 and 2008, the UK lost 400 no-qualification jobs *every single day*.

The decline in the number of jobs in manufacturing has been particularly sharp in rich economies. While the exact details of the numbers of jobs in manufacturing will of course depend on the way that jobs are categorized, in many rich countries the number of manufacturing jobs has declined by 50% over the last 30 years<sup>5</sup>.

The decline of employment in manufacturing in rich countries has two main causes: offshoring and automation. For most of the past 50 years, these two trends have operated separately. Offshoring tended to be used to reduce manufacturing costs of simple goods while manufacturing jobs that required high levels of skills were retained in the country for which the manufactured goods were intended, and wherever possible costs were reduced through automation. Because these two trends were operating at the same time, their effects are difficult to disentangle entirely, but it appears that the widespread assumption that automation has mostly replaced manual jobs is not, in fact, the case.

The demand for routine and non-routine manual skills has been declining for about 40 years (by about 3 and 5% respectively), but the fastest decline of all has been in the demand for routine cognitive skills, which has seen an 8% drop<sup>6</sup>. This is for a simple reason—computers are simpler than robots.

Humans have tended to believe that the most impressive aspects of human capability are those that tend to distinguish us from other animals, such as language, and highly intellectual pursuits such as chess. These are truly impressive achievements, but machines can now match many of these achievements. While no computer has yet passed the “Turing test” by convincing humans that they are conversing with other humans, recent advances suggest that this achievement may not be too far off. And for less than \$20, one can now buy computer software that will beat almost any human being at chess. However, we still haven’t managed to build robots that can stack shelves in supermarkets, which is why these jobs are being done by humans—for now. But the lesson of the last 250 years is that as soon as a job can be done by a machine, it will be, and the rate of progress appears to be accelerating.

We have already picked some of the low-hanging fruit in automating manual jobs. One highly skilled programmer can now do more work with computer-numerical-control (CNC) machines, and to a better tolerance, than twenty skilled lathe operators—with the result that twenty medium-skill jobs are replaced by one high-skill job, and this

trend appears to be as strong in the Far East as it is in the West<sup>7</sup>. This is why manufacturing employment has fallen in countries while they remain the world's largest manufacturers (as of 2008, the world's ten leading manufacturers were, in order of value, USA, China, Japan, Germany, Italy, UK, France, Russia, Brazil and Korea<sup>8</sup>). And as robots become cheaper and smarter, within 20 years—less than half-way through the working life of this year's school leavers—perhaps as many as half of the jobs currently in our economy will no longer be done by humans, and this is likely to be as true for middle-income countries as rich countries.

The idea that rich countries would be responsible for the design of high quality products which would then be manufactured in less affluent countries has already been undermined. In some fast moving areas, the intellectual property in high-tech products is now as likely to be owned by middle-income countries as rich ones. In this context, it is interesting to note that in 2008, for the first time, the majority of US technology patent applications originated outside the US.<sup>9</sup>

The other important point is that the development of technology allows new kinds of jobs to be offshored. Alan Blinder, an economist at Princeton University, estimates that as many as one-third of all the current jobs in advanced economies may be offshoreable<sup>10</sup> using existing technology, and as technology develops, the kinds of jobs that can be offshored changes too. Familiar examples of jobs being offshored include call-center operations, and even radiological services, moving to India<sup>11</sup> but it is now ten years since the first example of transatlantic telesurgery, in which Jacques Marescaux and Michel Gagner in New York performed a surgical procedure on the gallbladder of a 68-year-old woman in Strasbourg, France, 3800 miles away<sup>12</sup>. The woman left hospital 48 hours later, having suffered no complications. Given this, it seems that the vast majority of jobs might, in principle, be offshored.

This has led some commentators to claim that the world is “flat”—that geographical distance, and cultural differences, are immaterial, but the reality is far more complex. As Pankaj Ghemawat has shown, cultural differences, national borders, and geographical distance interact in complex ways, so that even prognostications about the “flattening” of the world cannot be anything more than speculation<sup>13</sup>. As Nils Bohr, the physicist, once said, “Prediction is hard, especially about the future.”

We are, in fact, entering a completely new era. Up until now, in most middle-income and rich countries, productive employment has been available to almost all adults of working age. In other words, whatever their capabilities, most adults have been able to find work in which they generate sufficient value for their employers to be able to afford to pay the employees a living wage. Whether this will continue to be the case is by no means certain.

It is as if we are walking up a down escalator. In the past, the rate at which our schools generated skills was greater than the rate at which the skill demands of work were increasing, and the availability of low skill jobs were being destroyed, so we made progress. But the speed of the down escalator has been increasing. If we cannot increase the rate at which our schools are improving, then, quite simply, we will go backwards.

In the past, we have treated schools as talent refineries. The job of schools was to identify talent, and let it rise to the top. The demand for skill and talent was sufficiently modest that it did not matter that potentially able individuals were ignored. The demand for talent and skill is now so great, however, that schools have to be talent incubators, and even talent factories. It is not enough to identify talent in our schools any more; we have to create it.

## What do young people need to learn in school?

The unpredictability of the future demands of the world of work has led to a great deal of interest in the idea of 21<sup>st</sup> century skills. Indeed it seems as if every country has produced its own list of the capabilities needed to be an effective citizen of the 21<sup>st</sup> century. However, while the content of these documents is invariably worthy, the extent to which the capabilities identified are usefully described as skills is unclear.

The word “skill” comes from Old Norse, and originally meant, literally, “knowledge.” Today, the term “skill” tends to be used in every aspect of human endeavor. Someone could be described as “skilled” at playing the violin, or table tennis, at surgery, or map-reading. In physical pursuits, the term tends to be used to describe capabilities that are acquired as the result of significant amounts of practice. Indeed, there is increasing evidence that it is the amount of purposeful practice that is by far the most important ingredient of skill in almost all areas requiring hand-eye coordination<sup>14</sup>.

In talking about the skills that children need to acquire in respect of traditional school subjects, however, the term “skill” tends to be used to describe broad areas of capability such as “communication skills,” “critical thinking,” “problem solving,” or even “learning how to learn.” The last of these is particularly attractive, because it seems to crystallize what we need young people to be able to do, as was made clear by Seymour Papert:

So the model that says learn while you’re at school, while you’re young, the skills that you will apply during your lifetime is no longer tenable. The skills that you can learn when you’re at school will not be applicable. They will be obsolete by the time you get into the workplace and need them, except for one skill. The one really competitive skill is the skill of being able to learn. It is the skill of being able not to give the right answer to questions about what you were taught in school, but to make the right response to situations that are outside the scope of what you were taught in school. We need to produce people who know how to act when they’re faced with situations for which they were not specifically prepared.<sup>15</sup>

So far, so good. There can be little doubt that communication skills, critical thinking, problem solving, and learning how to learn are immensely important now, and likely to be even more so in the future. However, there is one aspect of the current discussion of 21<sup>st</sup> century skills that has taken us in an unfortunate, and possibly disastrous, direction, and that is the view that these skills are generic, and transferable from one

context to another (indeed, in many contexts, these skills are called “generalizable skills” or “transferable skills”). Within a paper of this sort there is not time to deal adequately with this issue, so I will illustrate the issue by reference to the issue of “critical thinking.”

The idea of “critical thinking” seems important in every single school subject. Indeed it is common to hear teachers discussing with apparent consensus what this means in different subjects. However, this apparent consensus is the result of a failure to explore in depth what critical thinking really means. For example, in a mathematics proof, critical thinking might involve ensuring that each step follows from the previous one (for example by checking that there has not been a division by zero). In reading a historical account, on the other hand, critical thinking might involve considering the author of the account, the potential biases and limitations the author may be bringing to the account, and what other knowledge the reader has about the events being described. The important point here is that while there is some commonality between the processes in mathematics and history, they are not the same. Knowing that dividing by zero invalidates an equation, and being aware of ways in which this can be done accidentally, is learned in mathematics classrooms, not in generic lessons on critical thinking. In the same way, knowing enough about the history of the period under study to read an account critically requires subject specific knowledge. Most importantly, developing a capability for critical thinking in history does not make one better at critical thinking in mathematics. For all the apparent similarities, critical thinking in history and critical thinking in mathematics are different, and are developed in different ways.

The same argument applies to communication. Students are generally much better at communicating in areas that they know a lot about than in those areas where they know little. To be clear, I am not saying that there is no transfer at all. Practice in writing about mathematics may well improve a student’s ability to write about history (although the evidence on this point is rather thin) but the biggest component of being able to communicate mathematically is knowing the mathematics, not the communication skills. In other words, the development of these 21<sup>st</sup> century skills requires strong disciplinary foundations, generated through significant amounts of enculturation in the domain.

The argument that 21<sup>st</sup> century skills are in essence, specific to particular disciplines means that there cannot be any short cut. Each of the disciplines will need to be developed in terms of its own aims and rationales. The question is then which disciplines should be included in the curriculum.

This is a question on which obviously there will be substantial differences of opinion that cannot be settled on the basis of argument. Curriculum is, after all, as Denis Lawton described it, “a selection from culture”<sup>16</sup> and there is unlikely to be agreement even about culture, let alone what aspects should be selected for the school curriculum. However, in order to focus the inevitable discussion somewhat, I suggest that the school curriculum should be balanced, rigorous, coherent, vertically

integrated, appropriate, focused, and relevant. Each of these is discussed in turn below.

*Balanced:* the curriculum should promote the intellectual, moral, spiritual, aesthetic, creative, emotional and physical development of the child, and while the traditional disciplines of language arts, mathematics, science, history, geography should figure strongly, the creative arts are just as important. Indeed, given the increasing capability of technology to do almost anything that can be reduced to routines, it may be that the greatest contributions to economic growth will in the future come from the creative arts.

*Rigorous:* the curriculum should take into account disciplinary habits of mind—disciplinarily specific, powerful ways of thinking that are developed through sustained engagement with the discipline. Examples are inverse operations in mathematics, cause and effect in science, structure and agency in sociology, provenance and context in history, central tendency and dispersion in statistics.

*Coherent:* the entire curriculum should be designed in such a way as to promote the development of capabilities across subjects. As a trivial example, it might be a good idea if students learned about graphs in mathematics before they are needed in the science classroom.

*Vertically integrated:* the curriculum should be designed vertically, in terms of extended learning progressions so as to promote progression in learning. In other words, it should be clear how material taught in one year builds on what was learned in previous years, and how it leads on to subsequent learning.

*Appropriate:* the curriculum should provide an appropriate element of challenge for students, but should also take into account what is known about the way in which students learn, so as to avoid making unreasonable demands on students.

*Focused:* the curriculum should emphasize a small number of “big ideas” rather than attempting to include all aspects of the subject that might reasonably be learned by students of a given age. This will involve leaving out significant, and important, material, but as Sir Richard Livingstone pointed out seven decades ago, “The good schoolmaster is known by the number of valuable subjects which he declines to teach.”<sup>17</sup>

*Relevant:* the curriculum should, as far as possible, be relevant and should take into account the interests, needs, and wishes of students, but within a framework of informed choice in respect of pedagogy and curriculum. That is to say from the earliest ages, students should have a say in how they learn, and as they get older, also in what they learn. The curriculum should provide opportunities for students to specialize—to pursue their interests in greater depth than would be required of all students. However, students should not be allowed to discontinue the study of particular subjects until they have experienced enough of the subject to make an informed choice about discontinuing study of that subject. This, in turn, places a burden on



schools to provide rich experiences that properly introduce students to the disciplines, so that they know what they are giving up.

## So what's the solution?

Governments have understood the importance of educational achievement, and have striven to raise standards through a bewildering number of policy initiatives. Although most of these seemed like sensible measures at the time, the depressing reality is that the net effect of the vast majority of these measures on student achievement has been close to, if not actually, zero.

In the United States, significant investments of time or money have been expended on the creation of small high schools. The belief that reducing school size would improve educational achievement appears to have been based on observations that most of the schools with the highest overall levels of student achievement were small. This is true, small high schools are over-represented at the top end of the achievement range, but they are also over-represented at the bottom end of the achievement range. The results of small schools are more extreme than those of large schools simply because they are small<sup>18</sup>. While there is evidence that decreasing school size has led to better relationships between students and teachers, there is little evidence of any impact on student achievement.

In Sweden, beginning in the 1990s, for-profit providers of education were permitted to work within the public sector (effectively a “voucher” scheme). There was some increase in student achievement in the private schools, but this appears to be in large part due to significantly greater grade inflation in the private schools than in the state-run schools<sup>19</sup>. The most thorough evaluation of the Swedish reforms found that the benefits of private for-profit schools were small, limited to middle-class students, and transient<sup>20</sup>.

In the US, the introduction of “charter schools” appears to have resulted in a net lowering of student achievement. While some charter schools do appear to be radically improving outcomes for young people, others are not, and there appear to be more of the latter than the former. A recent evaluation of charter schools produced by Stanford University’s Center for Research on Educational Outcomes (CREDO) found that 17% of charter schools performed better than comparable schools run by school districts, but 37% did worse<sup>21</sup>.

We have searched for more effective textbooks, and found that in the vast majority of cases, there is no difference<sup>22</sup>. We have saturated schools with computers even though they have minimal impact on student achievement<sup>23</sup> and have spent thousands of dollars on interactive whiteboards that, in the hands of experts are stunning pieces of educational technology, but have little in the way of system-wide improvements<sup>24</sup>. In England, the National Literacy and Numeracy strategies were designed to improve the achievement of students in primary schools by improving the quality of teaching but the biggest improvements occurred in the years before they strategies were

introduced, and the biggest improvements of all were found in science—the one core subject that did not have a national strategy. The \$800m spent on the national roll-out of the national primary strategy resulted in just one extra student passing a test per school per year<sup>25</sup>. Most recently, also in England, we have discovered that the billions of dollars spent on teachers’ aides appears to have had no impact on student achievement<sup>26</sup>.

Why have such ineffective policies been pursued for so long? Part of the answer lies in the fact that we have been looking in the wrong place for answers. For many years, it has been known that there are large differences in the achievements of students attending different schools, and for many years, the main policy thrust has been to try to ascertain the “characteristics of effective schools” and try to emulate them in less successful schools. However, since in most countries, students are not allocated to schools at random, it is important to ensure fair comparisons between schools. In not one of the countries participating in PISA did the proportion of the variation in student achievement attributable to the school exceed 20%, and in the majority of schools it was less than 10%<sup>27</sup>. What this means in practice is that in most countries, as long as students go to school (and that’s important), it doesn’t matter very much which school they go to.

Another way to think about this is the way that the choice of school affects an individual student’s chance of reaching a given level of achievement (for example on a national, public examination). In the majority of OECD countries, the choice of school makes a difference to the chances of success for only around 10% of students. The other 90% of students are either so far above the bar that they will clear it even if they go to the worst school, or are so far below the bar that they won’t clear it even if they go to the best school in the area.

It turns out that it doesn’t matter very much which school you go to, but it matters very much which classrooms in that school you are in. And it’s not class size that makes the difference, nor is it the presence or absence of setting by ability—these have only marginal effects. The only thing that really matters is the quality of the teacher<sup>28</sup>.

In the classrooms of the best teachers, students learn at twice the rate they do in the classrooms of average teachers—they learn in six months what students taught by the average teachers take a year to learn. And in the classrooms of the least effective teachers, the same learning will take two years<sup>29</sup>. Moreover, in the classrooms of the most effective teachers, students from disadvantaged backgrounds learn just as much as those from advantaged backgrounds, and those with behavioural difficulties learn as much as those without<sup>30</sup>. That is why, as Michael Barber says, the quality of a country’s education system cannot exceed the quality of its teachers<sup>31</sup>.

This conclusion may appear paradoxical. How can teachers make so much difference when the differences between schools are so small? The reason is that in most countries, good teachers are randomly distributed within the system. There are great teachers and less effective ones in every school, and because the average quality of teachers does not vary very much from school to school, the differences between

schools in terms of academic progress made is small. This also explains why policies focused at changing schools have had limited success. Even if the initiatives themselves were successful (which in many cases, they weren't) the impact on educational achievement across the system would be small, because the differences between schools are small. However, this does not mean that improvements in schools are impossible. In fact, very large improvements in schools can be achieved, provided we realize that we have to focus on the teachers in the school, rather than on the structure of schooling.

## How do we get better teachers?

In some countries, such as Finland, Japan, and Singapore, teaching is such a high-status occupation that recruitment into the profession is highly selective. For countries in this position, the quality of teacher preparation, and the quality of continuing professional development is much less important. If you can persuade the smartest people in the country to want to be teachers, you will have a great education system.

For countries not in this position, efforts to raise the status of the profession are essential, but changes in the entrants to a profession take a very long time—typically of the order of thirty years—to work through, and are of limited impact. For example, suppose we could immediately raise the threshold for entry into teaching so that from now on, only those who are better than the lowest performing one-third of current entrants were able to become teachers. Suppose further that despite this raising of the threshold for entry into the profession, we were still able to recruit as many teachers as we needed. The effect of this—eventually—would be to increase teacher quality by just 20% of the current gap between teacher quality in Finland and average performing countries such as the United States or the United Kingdom. This would be equivalent to raising scores on PISA by 5 points—in thirty years' time. In terms of recruitment to the profession, this would mark a step-change of unprecedented size in most countries, and yet it hardly makes a dent in the challenge.

Another often proposed solution is to “de-select” (in other words, fire) the lowest performing teachers. In most countries, this is a politically difficult process, and even where it is possible, requires adhering to employment law, which generally means setting targets for improvement, providing support, and giving warnings where progress is inadequate. Even where the political will to address teacher underperformance exists, the result is a lengthy process that provides plenty of time for the ineffective teacher to move to a different school, where the whole process starts again. Furthermore, the impact on teacher quality is small. If, for example, we could replace the lowest-performing teachers with average ones, the net impact would be an increase of just 2 point on PISA (although unlike raising the bar for entry into teaching, this could be achieved relatively quickly). As Eric Hanushek has shown, if the lowest performing teachers could be replaced by average teachers *every year*, then in thirty years, this could have a dramatic impact on teacher quality, but it does not appear that elected officials in any country would be willing to expend the political capital needed to do this. Even if the political will could be found, it is far from obvious

that there would be an adequate supply of average teachers to replace those de-selected—if those hired were worse than those de-selected, then this strategy would actually reduce teacher quality.

Another approach that is often associated with de-selecting the least effective teachers is to provide performance incentives for good teachers. This is impossible to do fairly, because, as Jesse Rothstein has shown, good teachers benefit their students for at least three years after they stop teaching them, so we cannot attribute increases in student achievement to particular teachers<sup>32</sup>. More seriously for advocates of performance incentives for teachers, a well-designed random-allocation trial in Tennessee found that even teacher bonuses as large as \$15,000 had no impact on student achievement. In fact, there is good reason to believe that bonuses for teachers based on student achievement may actually impair teacher performance, since there is now overwhelming evidence that while performance-contingent rewards can increase performance in low-complexity low creativity tasks, they actually reduce performance in high-complexity high-creativity tasks<sup>33</sup> and it seems rather difficult to argue that teaching is not a high-complexity, high-creativity activity. Where teacher absenteeism is a significant factor, then incentives may have a role in getting teachers to turn up, but there would appear to be little to be gained—and a lot to lose—by providing teachers with incentives based on student performance.

To summarize the argument to date, to secure its future economic prosperity every country needs to improve educational achievement, and this can only be done by improving the quality of teachers. While de-selecting ineffective teachers, and raising the bar for entry into the profession, have a role to play, the improvement in student achievement resulting from these measures will be small—extremely small in comparison to the kinds of increases in student achievement that are needed. Securing future economic prosperity therefore requires a strategy for helping the teachers we already have to become better—what might be called the “love the one you’re with” strategy.

Twenty, or even ten, years ago this would have resulted in a very gloomy prognosis, since there was little evidence that professional development could improve teacher quality. In recent years, however, we have begun to understand that professional development has been ineffective because it has been based on a faulty analysis of the problem.

The standard model of teacher professional development is based on the idea that teachers lack important knowledge, particularly subject knowledge. For the last twenty years, most professional development has therefore been designed to address those deficits. The result has been teachers who are more knowledgeable, but little more effective in practice. This is partly because teacher subject knowledge is a small part of teacher quality—perhaps as little as 10% in primary schools<sup>34</sup> and no more than 30% in secondary schools<sup>35</sup>. Changes in what teachers know or believe will not benefit students unless teachers also change what they do in classrooms. We have been focusing on getting teachers to think their way into a new way of acting, whereas it

would appear to be far more effective to get teachers to act their way into a new way of thinking<sup>36</sup>.

Unfortunately, changing teacher practice is difficult, because it involves changing long established habits. For example, we know that the way that most teachers ask questions in their classrooms is less than optimal, but a twenty-year veteran teacher may have asked over a million questions in her classroom. When you've done something one way over a million times, doing it a different way it is difficult. This is the key idea if we are to improve teachers' practice—the realization that we need to help teachers change habits rather than acquire new knowledge—and this is why the requirements for teachers to be re-certified, like similar requirements in other professions, tend to end up as bureaucratic distractions. Put bluntly, in no profession do practitioners have to get better to retain their certification. They merely have to be able to prove that they have endured a certain number of hours of professional development.

On the other hand, we are beginning to learn what kinds of structures need to be in place to help teachers change habits. Teachers need to be able to exercise *choice*, to find ideas that suit their personal style, and they also need the *flexibility* to take other people's ideas and adapt them to work in their own classrooms. Because teachers use a number of well-established routines to manage their classrooms, changing these can make their teaching, at least in the short term, less fluent, so they need to take *small steps* as they develop their practice. Teachers need to be *accountable* for developing their practice—the evidence is that left to their own devices, teachers improve their practice slowly—if at all. And because changes in practice are so difficult, teachers also need to be given *support* for change.

It is clear that all these elements can be provided through the establishment of school-based teacher learning communities<sup>37</sup>. In monthly meetings, of around 75 minutes duration, teachers report back to their colleagues about what they have done in their classrooms to improve their practice, get the support of their colleagues for persisting with these difficult changes, hear about new ideas for improving practice, and commit themselves to specific improvements in their practice for the coming month. Schools that have embraced this kind of structure have seen significant improvements both in practice, as observed in classrooms, and in results on public examinations<sup>38</sup>.

### Why aren't we doing it already?

However, the biggest obstacle is leadership. In one London borough, the headteachers of the secondary schools planned the introduction of teacher learning communities for a year, and released, at the schools' expense, 150 teachers to attend training on the establishment of teacher learning communities (TLCs). Each school agreed to establish three such TLCs, but four months after the start of the school year, less than half of the TLCs had found time for even a single meeting, let along the scheduled four<sup>39</sup>.

The problem is that our schools are inundated with initiatives, and too many schools try to embrace them all. When everything is a priority, nothing is, and schools have to be selective about where they invest their efforts. Too many educational leaders, at school, at local authority, and at national level, are content to “let a thousand flowers bloom” in terms of school improvement. If we had no idea what we needed to do, then this would be a good Darwinian approach—try out lots of things, and evaluate them to see what works. But when there is clear evidence about what *does* work, it is frankly self-indulgent. And we do have very good evidence on a number of interventions that have proven impact on educational achievement, although the list is quite short. Notable examples are Success for All<sup>40</sup>, Philosophy for Children<sup>41</sup>, Cognitive Acceleration<sup>42</sup>, and formative assessment<sup>43</sup>.

Effective leadership is rarely about stopping people doing unproductive things. In most public service organizations, people are in the main genuinely interested in doing good. The problem is that when resources are limited (as they always are) then whether something is good is irrelevant. What matters is whether there is something better that could be done with the same resources. That is why leadership is so hard. It requires preventing people from doing good things to give them time to do even better things.

## Conclusion

If we are serious about improving the quality of our education systems to meet the increasing demands of the world of work, then we need a culture change. No longer can we accept that once one has been teaching five or ten years, one is “good to go”. Teaching is such a complex craft that one lifetime is not enough to master it, but by rigorously focusing on their classroom practice teachers can continue to improve throughout their career. From teachers, therefore, we need a commitment—not to attending a certain number of hours of professional development per year—but a career-long commitment to the continuous improvement of classroom practice, and an agreement to develop in their practice in ways that are likely to improve outcomes for their students.

For leaders, the requirement is to create a culture for the continuous improvement of classroom practice, and to keep the focus on a small number of things that are likely to improve outcomes for students. In addition, they need to create the time within the existing teachers’ contracts to do this, and to encourage the taking of sensible risks.

Improving the quality of entrants to the profession has a part to play here, but it is a small part. Even with their most ambitious plans for expansion, teachers trained through schemes like “Teach for America” or “Teach First” are unlikely to account for more than 1% of the teaching force, but by signaling that teaching is a job that smart people do such schemes will increase the attractiveness of the profession to others. We need people who are drawn to the profession not because it is easy, but because it is hard—a job that is so difficult that one’s daily experience is of failure, but one where, each day, to quote Samuel Beckett, one can “fail better”<sup>44</sup>.

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