

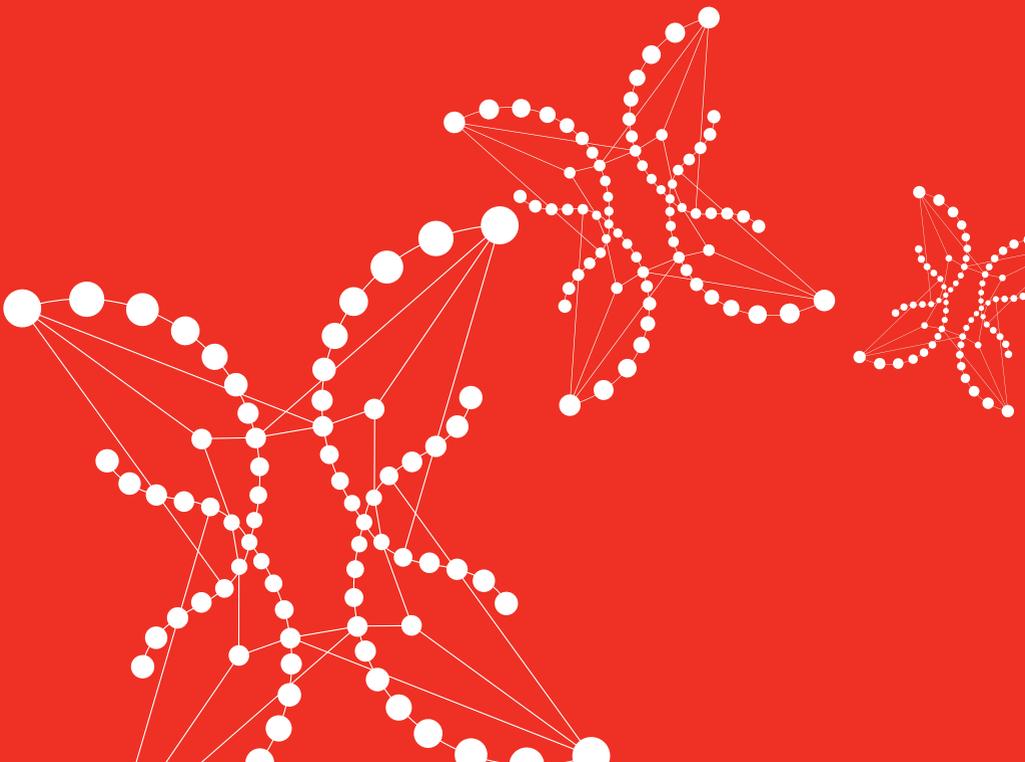
June 2009

NESTA Making
Innovation
Flourish

Impossible and necessary

Are you ready for this?

Sir Michael Barber





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NESTA is the National Endowment for Science, Technology and the Arts. Our aim is to transform the UK's capacity for innovation. We invest in early-stage companies, inform innovation policy and encourage a culture that helps innovation to flourish.

Foreword

Talent is the single most important challenge facing the UK economy. It underpins our ability to compete successfully on the global stage. As chair of BT Group and as chair of the UK Commission for Employment and Skills, I know that demand for talent and skills is not new. It has been on boardroom agendas for many years. What is new is the sheer scale of the demand and the speed at which things are changing.

In this paper, Sir Michael Barber points us towards a broader issue: the crucial role of education in tackling social challenges – today and in the future. As Sir Michael suggests, confronting these issues – from climate change to poverty – will require a new generation of engaged, imaginative citizens.

This paper does more than identify this challenge. Sir Michael usefully cuts through the tired and artificial ‘debate’ between those who emphasise that education is about transmitting knowledge and those who favour the development of skills and capabilities. We need both intelligence and imagination in our young people. Future innovation depends on it.

But more fundamentally, Sir Michael calls on school leaders and those who run school systems, to educate young people to be better citizens and better leaders. As he states, we need to develop a new capacity for leadership – not just in large organisations but across society, and in our families and communities.

Learning to lead will demand new ways of teaching, and a new capacity for change and improvement in education. It will not be easy. But nothing could be more important.

Sir Michael Rake

Introduction

‘Impossible and necessary’ is a speech, written for a conference of headteachers, in which I set out my fundamental beliefs about the importance of reforming education in the 21st century. I wanted to search beneath the surface of what passes for debate about education policy and find the underlying purpose. I also hoped to show that, demanding though it will be, universal, successful education is achievable – if we have the will to pursue it.

Whether I succeeded in this double mission is for those who heard it or read it to decide. The question I want to answer here is why NESTA should publish it. At first glance, after all, the speech seems at best tangentially relevant.

NESTA’s mission is ‘to transform the UK’s capacity for innovation... and encourage a culture that helps innovation flourish’. ‘Impossible and necessary’, I realised after I had written it, relates closely to this mission in a number of ways.

Firstly, in the first third of the text it makes the case that during the last 250 years the extent of innovation, which we simply take for granted most of the time, has been remarkable – and would surely be the most striking difference to a space traveller who visited in this decade after an absence of 250 years. Secondly, the innovation has consequences – often beneficial but also often very demanding – which require that we constantly renew the moral basis of how we live our lives, especially now that as a result of scientific innovation the future of life on Earth is in our hands.

Thirdly, the challenges we have set for ourselves – environmental, social, and economic – as a result of the innovations of the past, can only be solved by further innovation which will need to be both scientific and ethical. In the

past 250 years, technological innovation ran far ahead of ethical innovation; in the future the two must be in harmony.

If that is the case, then the fourth point follows: our school system needs to foster innovative capability in every young person. This will require each young person to learn a body of knowledge, including, needless to say, to read, write and do mathematics to a good standard, and to learn how to think for themselves and influence others. Moreover, they will need to learn these things within an ethical framework which prepares them for the 21st century.

The fifth point follows from the fourth. Since no school system in the world is currently achieving these objectives for every young person, innovation will be essential. However, to innovate we require a shared understanding among education leaders about what the current evidence base shows. Many of those who advocate innovative capacity in school systems really mean they want to reinvent the past.

Hence I argue here that we need to apply systematically the knowledge we already have about improving education systems. This would lead to a massive improvement in the performance of education systems; indeed, one could argue that building policy on the basis of evidence would be an innovation in itself in many parts of the world. At the same time, systems need to create the capacity to innovate by ensuring they have excellent data systems and by enabling demonstrably successful school leaders to model the future.

Finally, the title itself is a definition of innovation. Achieving the necessary performance in education systems in the next decade or so indeed looks impossible, but as the speech points out, in 1750 travelling from Liverpool to Manchester by train – never mind landing on the Moon – looked impossible too.

Sir Michael Barber

Impossible and necessary

Are you ready for this?

Are you ready for this? This is a speech which begins with a question, explores some dilemmas facing humanity, examines the immense challenges they place before us as educators, suggests how we might rise to those challenges and finishes with the same question.

You are aware, of course, that in England we inspect almost everything. And, in case that's not enough we audit it too. We're the regulatory specialists. Even so, you may not be aware that out there in space there is an Intergalactic Audit Commission – like the National Audit Office but bigger – whose job it is to examine how well the leading species on each planet fulfils its stewardship responsibilities. The IAC's inspection cycle is pretty rapid in cosmological terms but even its resources are limited. As a result, it only makes it round to any given planet roughly once every 250 years. Very often all that is required, after this (relative) blink of an eyelid, is a brief spot-check for, on many planets over so short a time, nothing of significance has changed.

The IAC's last major report on Planet Earth was around 1750, and, when it paid its fleeting spot-check visit early in the present decade, it decided that in our case, because the extent of change was so dramatic, a more substantial inspection would be required. That inspection is almost complete and, as one of those randomly chosen for their interview programme, I'm able to share with you – confidentially needless to say – an outline of their findings. Let me say at the outset that it is an impressive piece of work. I'm sure that when the detailed report becomes available it will be widely read, not just in the White House, the Kremlin and No.10 Downing Street, but – to use Elvis Costello's words – from 'Singapore to Widnes'.

The report is in two sections. The first is overwhelmingly positive. The truth is the audit team are in awe of what has been achieved on Earth in the last 250

years. Indeed they indicate that, to their knowledge, nothing like it has ever been seen before, anywhere in space.

The first chapter, for example, is on technological innovation and science. Last time they were here steam power had barely been harnessed – in fact, in the 1750 report they missed it altogether and focused instead on the importance of crop rotation and the early emergence of canals. In their new report they highlight the importance of the first passenger train leaving my home town of Liverpool in 1830 (incidentally running over and killing the local MP, William Huskisson) and arriving a short time later in Manchester. (For some reason they were not surprised that people were in a hurry to leave Liverpool.) They point out that just 40 years later there was a transcontinental railway in the United States and, 40 years later again, a Trans-Siberian railway.

They also highlight, in more recent decades, the rapid development of computer technology. As it happens they quote their interview with me on this subject.

I first saw a computer in 1963. My father took me to the Jacob's biscuit factory on the outskirts of Liverpool where one of his tasks had been to introduce THE COMPUTER. It was a machine that filled a large room. Dozens of staff fussed around it, stuffing punch cards in at one end so that, at the other, it would print out the invoices. That was all. Even so, I was awestruck.

Today, less than 50 years later, my BlackBerry, no larger than a slice of toast, does as much in a split second.

The symbolic moment that represented this half century of development was 11 May 1997 when a computer called Deep Blue beat World Champion Garry Kasparov at chess, surely a seminal event in human history. Then last year, I read that computers will soon have the learning capacity of a toddler. That's a lot of learning capacity, as any parent knows. It's also a lot of tantrums. I fully expect, a few years from now, to read that computers will have the learning capacity of a teenager and no doubt stay in bed until lunch time.

Railways and computers are just two spectacular stories of technological development and social impact highlighted in their report, but of course there are many others – in medical science, the cracking of the genome for example, or in engineering, the development of space travel. They also point

to other inventions, less often mentioned, that have changed the world; refrigeration, for example (though they had doubts about fridge magnets) and air-conditioning, invented for a Brooklyn factory in 1902 but completely transforming the way of life – indeed creating cities – across the southern United States, the Middle East and many other places.

The second chapter leads on directly from the first and focuses on economic growth. They point out that the rate of growth over the last 250 years has been absolutely incredible and, in spite of the current economic downturn, they suggest it will not only continue but accelerate in the decades ahead. They include one quite stunning statistic. They add up all the economic growth in human history from before the Pyramids to the building of the US Interstate Highway system in the 1950s. They then say that they expect us to generate that much economic growth all over again within the next two decades. Staggering.

Their third chapter focuses on the spread of democracy, the rule of law and human rights. Things taken for granted now in many countries, such as freedom of the press, were bitterly contested last time they were here even in Britain, then the world's most advanced country. Remember John Wilkes? They are stunned and impressed by the changing place of women in society. They are reluctant to highlight specific political leaders in this chapter because they are strictly impartial but they do put in a good word for Lincoln, Churchill, Gandhi and Mandela.

Next they turn to art, literature and music. They love the great novels of the 19th century – Dostoevsky, Austen, Twain and Balzac, for example. They are in awe of paintings by Hokusai, Monet, Van Gogh and Picasso. The great Romantic composers from Beethoven to Rachmaninov are praised. The poems of Pushkin, Wordsworth, Tagore and Dickinson are mentioned too. It should be said that, in a footnote, they say they have not yet made sense of Mark Rothko or Tracy Emin and, while they despair about 1960s architecture, they love Vivien Leigh and Clint Eastwood.

I haven't time even to mention many other areas dealt with in the first section of their report – developments in philosophy or sport, for example – but I'm sure you've got the picture. This was a 250-year period of extraordinary and spectacular achievement across a wide range of endeavour, judged even by

galactic standards. They say we have every reason to take pride in what has happened.

* * *

Then there is the second section of their report, where they are highly critical. I haven't time to cover all the detail but let me say bluntly, this section is a very daunting read. Absolutely not for the faint-hearted.

They explain, for example, that in the 1950s there were 2.5 billion people on the planet; by the 2050s there will be 9 billion people. That is a very crowded planet they say and, in one of the refrains in this part of their report, they ask "*Are you ready for this?*"

They point out that soon there will be more than 25 cities with hugely diverse populations of over 10 million. In the present decade, they say, for the first time in history more than half the human population lives in cities. In today's Toronto, 57 per cent of the population was born outside of Canada. It, like other megacities, is a vast experiment in turbulence and diversity. Huge opportunities, huge challenges. *Are you ready for this?*

In a particularly sobering section they stress the huge disparities of wealth and poverty both within individual countries and across the planet. Right now, in spite of the billions taken out of poverty in the last two decades, there are 3 billion people living on less than two dollars a day. This means, as they explain bluntly, there are more poor people now than the total population of the planet just 50 years ago, never mind 250 years ago. With all that extraordinary economic growth highlighted in the first section of the report, they feel compelled to ask – in a second, sharper refrain – *how could you do that?*

The section on conflict and weapons is no less challenging. The Napoleonic wars were bad enough; the 60,000 casualties at the Somme on 1 July 1916 were worse, but they say, everything changed on 6 August 1945 when the first atomic bomb was deployed in war. Since that moment, human beings have understood that they hold "in their mortal hands" – as John Kennedy put it in 1961 – the power to destroy the planet they inhabit. That changed everything – not just weapons and war but morality. Or it should have. Yet in fact what has happened is that those weapons have become not just more

terrible but more widely available. The possibility of their use in a regional conflict – though with global consequences – has increased, not decreased, since the end of the Cold War. As Einstein put it so powerfully: “The unleashed power of the atom has changed everything save our modes of thought.”
... *How could you do that?* That refrain again.

They finish this section by quoting Henry Kissinger, the present era’s arch-exponent of Realpolitik: “Our age has stolen fire from the gods; can we confine it to peaceful purposes before it consumes us?”

How did you allow, they say in accusatory tone, your capacity to resolve conflict to develop so much more slowly than your capacity to wage war?

On the global environment, they are more challenging still. There may be less drama in a dripping hot tap, a car ride to the supermarket or an unnecessary plastic bag, than in an atomic bomb, but the cumulative, long-term consequences could be just as devastating. Between 1750 and 2000, they point out, the average temperature on the planet increased by 0.8° Celsius – a problem but not devastating and not necessarily out of kilter with data in their reports, long ago, during the Ice Age. What really worries them is that, in the next century, the temperature will rise by 2° or even 3° Celsius, unless there are drastic changes in our behaviour. This is unprecedented with consequences that will be both massive and unpredictable. *How could you do that?*

Partly as a consequence of climate change but partly also of the crowded planet, farming and fishing practices, not to mention human beings’ scant regard for other forms of life, they say that the rate of extinction of species is now 1,000 times faster than at the time of their last visit. This represents possession not stewardship, they remark firmly. *How could you do that?*

They conclude the second section with an urgent passionate appeal for us to recognise our folly. I quote in full.

We simply can’t believe you didn’t see the environmental crisis coming. We knew you had a problem in June 1953 when we read reports of ‘The Conquest of Everest’. The simple use of the word ‘conquest’ in that context was sharp evidence of a relationship between human beings and the planet that had gone awry. Three short years earlier Maurice Herzog

and his colleagues had similarly ‘conquered’ Annapurna and, on their way down, lost their fingers and toes to frostbite. Conquest? That wasn’t a conquest, it was a humbling. Surely, the response to such mountain grandeur should have been humility, not triumph. Do you not remember the far-sighted writings of Alexander von Humboldt who, early in the 19th century when all the Enlightenment was pulling humanity in a different direction, drew attention to ‘the chain of connection’ and humanity’s place in nature?

Across all of history, civilisations have come and gone, destroyed by overpopulation, conflict, environmental degradation and hubris...on the Mayan peninsular, on Easter Island, in Greenland, in Arizona, in Europe... on and on. How can you have possibly forgotten this?

In spite of all your extraordinary achievements, why do you seem to think, this time on a planetary scale, that this can’t or won’t happen to you now? Why? On that dramatic day – 20 July 1969 – when human beings first stood on the moon and looked back at the small, blue planet you inhabit, surely you had the chance to understand the fragility, in cosmological terms, of life on earth? Forty years have passed but still you hesitate.

Keep writing reports, setting up committees and making documentaries if you must, but please, please not as a substitute for action. Immediate and far-reaching action. Are you ready for this?

And there the second section of their report ends.

It is followed, as you would expect, by some recommendations. They are very economical – just two. First, the report proposes, not surprisingly given the state of affairs, that an improvement team – a collection of turnaround specialists from across the galaxy – will be sent in. I’m not sure what it will be called on the Moon but the Sun will most certainly call it ‘a hit squad’. The inspection team fully expects that in time this ‘hit squad’ will make good progress even with the most intractable problems but it has a deeper worry – what will happen when its members return to their own planets and leave us alone again?

For this reason, the report gives greatest emphasis to the second recommendation which says, bluntly, *while we help you sort out the mess you've made, can you do one thing – just one – really, really well? Educate every child and young person on the planet better, much better, than you've ever done before because they are your sustainable future.*

They then offer some advice – based needless to say on intergalactic benchmarks – on how we might do this. Helpfully they start by saying what they mean by 'well-educated'. As I pointed out they are very economical, so they summarise their definition in an equation: Well-educated= $E(K+T+L)$

This is how they explain it.

K in this equation is for knowledge. There has been some debate among you about whether knowledge is important in this rapidly changing world. Frankly this is absurd. Every child needs extensive knowledge: to learn to read and write well, to do mathematics well, to master the basics of science, an outline of the history of their country and the world...and so on. Pupils need both theoretical and applied knowledge and the skills that go with it.

There is a saying you have on Earth that 'Knowledge is power'. In fact, this is not true. Knowledge on its own is not power. Knowledge is limited. It's an essential precondition but it's not enough. Since the key to the future is to empower everyone, you need to go further.

Children and young people also need to learn how to acquire ever more knowledge, to connect apparently unconnected pieces of knowledge and indeed perhaps to create it. This is why after the K in the equation, there is a T. It stands for thinking or thought. Your children and young people need to learn to think inductively and deductively, alone and in teams, logically and creatively, spontaneously and deeply. Thinking can be both abstract and practical, the latter captured beautifully in Singapore's slogan for vocational education: 'We think with our hands'. Children need to understand the different kinds of thinking that apply in different disciplines – attitudes to evidence in science and history, for example. Last but not least, they need to learn to use the imagination and explore its

farthest reaches. “Imagination”, said Einstein, the best scientist on earth in recent centuries, “encircles the world”. That’s why drama and art and music, along with maths, science and literature, matter so much. Here you will find the sources of future innovation. Of course, they should not learn this T separately from the K. It should be integrated with the K but made explicit in the teaching and learning process.

However, even knowledge plus thought does not equal power. There is something else more elusive still, that makes all the difference. How many times have you seen two people leaving a meeting and one of them says about the decision just made, “I didn’t agree with that”? “Why didn’t you say so?” asks the other. “I didn’t think it was the right time”, replies the first. What they mean is that they didn’t have the confidence to contribute at the point of decision. They might have had the knowledge and done the thinking but they had no influence because they missed their moment. What they lacked when it mattered was the L in this equation – leadership.

Here we’re not just talking about preparing future leaders of large organisations, important though that is; rather schools should be equipping every student with the capacity to lead in their family, their workplace, their community, their world. Given the challenges you face on Earth, you simply can’t afford to continue to waste leadership capacity on such a colossal scale.

There are many reasons why this is more important now than it has ever been. One is that the pace of decision-making has accelerated, driven by the pace of economic growth and technological change. A second is that the range of issues over which decisions are needed has expanded. (Just to take one example – until the early 20th century there were places where human beings lived and then there were wildernesses which were untouched and timeless. Now if there are to be wildernesses, human beings have to decide they want them and do something about it. Otherwise they will be gone in a few decades. The same applies to the state of the oceans and countless species threatened by humanity’s remorseless impact on the planet.)

A third is more profound still. These decisions that you face cannot just be taken at the level of government and large organisations; they are often highly local, even individual. Think for a moment about genetic

engineering and so called ‘designer babies’ – governments can create an ethical framework perhaps, but individuals will decide in the end.

What this means for education is that, not just in the core curriculum but across all their activities in school and out of it, children and young people need opportunities to learn to lead (to take responsibility, in other words) and to experience different ways of reaching decisions – in class and in corridors, in sport and games, in drama and music, in work placements and university visits, on mountain walks and museum tours. Children from all backgrounds should be entitled to the range of opportunities that those from advantaged backgrounds take for granted – because the development of educational capital, as Sir Alistair Macdonald points out, is as important as academic performance and indeed complementary to it. In a nutshell, this is citizenship education.

Young people also need to believe that their decisions can and do make a difference to the world around them; they need to overcome the weary cynicism that infects so much of modern life. In short, they need optimism. As Bill Clinton once said: “No-one in their right mind wants to be led by a pessimist.”

This means that every school should be checking, student by student, not just whether pupils are achieving academically but also whether they are learning to lead. However good the data, the numbers will not tell the whole story. Much of this rounded education is not measurable but this does not mean its presence or absence cannot be identified. Crucially, schools need to be sure that, for each and every young person, there is an adult on whom they can rely, for rounded advice as they consider their future and for encouragement in moments of despair. In all these ways, it should be possible to create such a diverse range of leadership opportunities that everyone can develop the character, resilience and capacity to innovate which are the ingredients of the leadership required for the short decades ahead.

K+T+L. Knowledge plus thought plus leadership. For everyone. Imagine. No achievement gaps. A high floor. No ceiling. Imagine.

So why the E on the outside of the bracket? Because it is possible to combine K+T+L, and therefore have power, but use it for deeply evil

purposes. We saw plenty of bloody examples in the 20th century. So the E stands for ethical underpinning. Your schools, right across the world, need to prepare every young person to rise to challenges described here and exploit the emerging opportunities – to thrive in vast, diverse cities, share the planet with other living things, preserve the wildernesses, generate economic growth without waste, resolve conflicts peacefully and deploy wisdom and judgement at moments of crisis. It is not ‘all relative’; these are matters of right and wrong on which the quality of life, and perhaps life on earth itself, ultimately depend. Every interaction between adults and students is an opportunity to teach and learn these fundamental values. Great schools seize these opportunities. Moreover, in the turbulent, kaleidoscopic society of the present era, the school is the only social institution, on which you can rely to provide this ethical underpinning; each school a microcosm of the better society you might become, each teacher an example of the better humanity to which you aspire.

That then is the advice of the Intergalactic Audit Commission. You may say: “This sounds impossible.” I will agree and add, “and necessary”. The IAC will agree too and calmly point out that in 1750 travelling from Liverpool to Manchester on a train, never mind landing on the Moon, seemed impossible too.

While it is clearly the case that there is no school system yet that achieves success even close to the ambition set out above, the first steps are surely to examine both what the best education systems in the world currently do and how they do it and learn the lessons. The growing interest around the world in international benchmarking is, therefore, a welcome development. There is indeed a phenomenon emerging – admittedly still in its infancy – which I term ‘the professionalisation of system reform’. Just as, two decades ago, we professionalised school effectiveness and school improvement, so now we are professionalising system effectiveness and system improvement. We are developing globally a comprehensive knowledge base about system reform and increasing numbers of system leaders – though still a minority – are applying it.

Let me be specific about who those system leaders are. I include, of course, those politicians and officials who have the awesome responsibility of

leading their education systems into the 21st century. In a modern democracy inevitably politics, short and long-term, will play their part. This is after all what it means to be democratic and there are many plausible routes to success, not just one. But if short-term politics or personal ambition become overriding, then the risk of making decisions contrary to the emerging evidence base increases significantly. By contrast, if these leaders form a guiding coalition of system leaders committed to success, informed by the evidence and with a shared understanding of the agenda and how it is to be implemented, the opportunity is immense.

Seizing this opportunity depends on what Michael Fullan and I call “ever-widening circles of leadership”, which means embracing the increasing numbers of school leaders who have both the will and capacity to contribute to the system beyond their own schools. The wider and deeper this shared system leadership goes, the greater the chance of a strategic system reform surviving the slings and arrows of misfortune which are the inevitable lot of politics around the world. This makes it imperative that there is a shared and deepening understanding of what lies at the heart of good education systems, good schools, good teaching and good learning. Let me, therefore, highlight just a few of the resounding messages from the global knowledge base I mentioned.

Every system needs to attract sufficient talented, well-rounded people into teaching and train them well at the start of their careers. A focus on the quality of teaching is more important than tinkering with the number of teachers. Most systems don’t yet do this but at least we know what it looks like.

Every system needs to create the circumstances in every school in which every lesson is a good lesson and teaching is – in Michael Fullan’s well-chosen word – ‘deprivatised’, so that each teacher (working in teams as well as individually), learns continuously to improve his or her pedagogy. Being willing to experiment on the basis of deep knowledge, continuous professional dialogue and rapid feedback loops will not only drive this improvement, it will also lead to bottom-up innovation and enhance professional satisfaction. Most systems don’t yet do this but at least we know what it looks like.

Every system needs to ensure informed, skilled, aspirational, educational leadership at every level, most of all at the level of the school. We know

that devolving power and budgets, along with accountability, to school level works. It unlocks the ambition and inspiration of school leaders. Crucially, it provides the opportunity for the evidence-informed, school-led innovation which will ultimately lead systems into the next, as yet unimagined, stage of even higher performance. Most systems don't yet do this but again we know what it looks like.

John Dunford pointed the way to this in England in his Associate of School and College Leaders Annual Conference speech in 2008, making the case for "strong, autonomous schools and colleges, empowered to collaborate, held to account intelligently and involving more strongly their main stakeholders, the students and their parents". Absolutely. To which I would only add, "led by leaders who will never flinch – even when the going gets tough – in their commitment to ensuring E(K+T+L) for every child and young person".

Every system needs, at every level, to track the progress of every student, to be transparent about performance and to have means of intervening to remove barriers to success at the level of the student, the classroom, the school and the system. Good data systems are the bedrock of this possibility. None of this is easy but, if we really believe in high standards for every young person, it is essential. Again most systems don't yet do this but this too is known and so evidently practical.

Above all, the best systems consciously set out not just to raise standards but also to eliminate achievement gaps. They know this is difficult but they are not deterred.

If I may unscramble the language so nearly brought into disrepute by Donald Rumsfeld, I accept there are 'known unknowns' and perhaps 'unknown unknowns' about how to achieve the aspirations I have set out. But if collectively we were to spend five or ten years simply implementing, with quality and depth, these 'known knowns' the progress we would make would be unbelievable. Combine that with the encouragement of innovation and we would find the necessary confidence and ideas to build the momentum needed to face the much more profound challenges beyond.

What stops us? Erring on the generous side, it should be pointed out that much of this system knowledge is recent and insufficiently understood by leaders around the world. There are other more serious problems though.

Obsessions with policies which are both wrong and expensive, such as continuing marginal reductions in class size or protecting teachers' 'rights' – regardless of the evidence – to teach as they wish in the citadel of their own classrooms, are still widespread. Many still cling to the demonstrably false view that creativity consists of each teacher making it up in their own classroom. This is not creativity, it is betrayal. Another common flaw: sometimes across whole systems, expectations are set too low and, as a consequence, millions of children are written off. Yet another – the capacity of educators to stumble into a false dichotomy and debate it (vigorously and at length to the benefit of no-one) is legendary – for example, the widely held but absurd view that because some things can't be measured, we should measure nothing.

Then there are system leaders who reach accommodation with the most powerful lobby groups, intentionally ignoring the knowledge we have, because they choose a quiet life ahead of a successful system. Others, more constructively (but not necessarily more effectively) think transformation can be wrought by a series of randomly-generated initiatives rather than coherent whole-system reform.

Still others, and they are many, understand what they need to do but fail to master the crucial art and science of implementation. How do I know these and other errors get made? Partly because I see them all around the world but also because, at one time or another, I have made most of them myself.

These are the accumulated barriers to success we have, perhaps sub-consciously, designed into our systems. Too often they dominate our patterns of thought; there are many educators and system leaders who simply don't believe that successful change is possible. There are academics who use sophisticated statistical techniques to support the view that social background remorselessly determines outcomes, regardless of what education systems do. Along with that Russian Prime Minister, who left office after a frustrating year in the 1990s, they cry: "We tried to do better but everything turned out as usual." The truth is that all too often we have defeated ourselves in our own heads before we've even begun.

As the knowledge of how to create successful systems accumulates, starting now, we have to do better, much better. We have to believe we can rise to the momentous challenge we face. Two hundred years ago Shelley warned us of

our fate if we allowed our own sense of self-importance and cynicism to block out a vision of a better world.

*...And on the pedestal these words appear:
"My name is Ozymandias, king of kings:
Look on my works, ye Mighty, and despair!"
Nothing beside remains: round the decay
Of that colossal wreck, boundless and bare,
The lone and level sands stretch far away.*

No-one would consciously choose Ozymandias's fate. It happens by default. Hubris overcomes humility; cynicism triumphs.

If we want a different, richer, better, deeper, more sustainable future we will have to choose it and pursue it with vigour. Humility overcomes hubris. Generosity triumphs. And the only place to start is in our classrooms. *Are you ready for this?*

References

- Barber, M. (2008) 'Instruction to Deliver: Fighting to Transform Britain's Public Services.' London: Methuen.
- Barber, M. (2008) 'Neither Rest nor Tranquillity.' Speech at the National Education Summit, Washington D.C., 15 September 2008.
- Diamond, J. (2006) 'Collapse: How Societies Choose to Fail or Survive.' London: Penguin.
- Dunford, J. (2008) 'A New Alignment for Secondary Schools and Colleges.' General Secretary's Address to ASCL Annual Conference, March 2008.
- Friedman, T. (2008) 'Hot, Flat and Crowded.' London: Allen Lane.
- Fullan, M. (2007) 'The New Meaning of Educational Change.' London: Routledge.
- Fullan, M. (2008) 'The Six Secrets of Change: What the Best Leaders Do to Help Their Organisations.' San Francisco: Jossey-Bass.
- Gardner, H. (2007) 'Five Minds for the Future.' Cambridge, MA: Harvard Business School Press.
- Isaacson, W. (2008) 'Einstein: His Life and Universe.' London: Pocket Books.
- Kissinger, H. (2009) 'Newsweek.' 16 February 2009 issue.
- Levin, B. (2008) 'How to Change 5000 Schools.' Cambridge, MA: Harvard Education Press.
- Sachs, A. (2006) 'The Humboldt Current: Nineteenth Century Exploration and the Roots of American Environmentalism.' New York: Penguin.
- Whelan, F. 'Lessons Learned.' London: Fenton Whelan.



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ISBN 978-1-84875-045-6



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