

Speech: School Standards Minister at ResearchED

Thank you.

It is a pleasure to be back at the ResearchED National Conference once again. This teacher-led movement for a better understanding and use of evidence in education continues to go from strength to strength, and from country to country and also from continent to continent.

From Scandinavia to South Africa, Australia to North America, ResearchED is a global movement of teachers seizing back control of their profession.

And wherever conferences are held, it is the plurality of voices afforded a platform that defines ResearchED. Today, for example, attendees face the unenviable task of selecting between sessions. From Ben White's evidence about reducing teacher workload and improving retention, to Cat Scutt's whistle-stop summary of the evidence for what makes a highly effective teacher.

Today – as with all ResearchED conferences – teachers will share the stage with world-leading academics at the cutting edge of their field. Teacher, PhD student and prolific-blogger Greg Ashman, who has flown in from Australia, will be taking a challenging look at the practice of differentiation. Professor Becky Francis will be discussing issues of equity in the context of the Institute for Education's work on ability grouping.

Stephen Tierney – Chair of the Headteachers' Round Table – will be sharing his experience of building an evidence-informed school. And Mark Lehain – Director of the New Schools Network and Parents and Teachers for Excellence – will be sharing his expertise on implementing a knowledge rich curriculum. And Professor Daniel Muijs will be sharing the extensive work that Ofsted has been doing on how to improve the validity and reliability of school inspections.

The diversity of viewpoints and research interests means that ResearchED lends evidence-informed and nuanced voices to the great debates of education.

One such debate is the 'knowledge vs skills' debate. This important debate is decades old, but – somewhat paradoxically – as our understanding of how children learn has improved, the debate has become more polarised.

There is no doubt that in our ever more globalised world, one of the key purposes of education is to prepare the next generation to thrive in the 21st century. We must ensure that pupils are equipped with both powerful knowledge and the skills needed for this century.

And yet, the new technologies and seemingly ever changing world of the new millennium – now commonly referred to as the '4th Industrial Revolution' – shouldn't be an excuse to give way to romantic notions that education needs

overhauling.

All around the world, the desire to react to the unprecedented pace of technological change has led to many experts and commentators proclaiming knowledge-rich education redundant. Here is one example from a commentator in the Guardian:

'In the future, if you want a job, you must be as unlike a machine as possible: creative, critical and socially skilled. So why are children being taught to behave like machines? Children learn best when teaching aligns with their natural exuberance, energy and curiosity. So why are they dragooned into rows and made to sit still while they are stuffed with facts?'

George Monbiot went on to repeat the trope, comparing schools to factories:

'Our schools were designed to produce the workforce required by 19th-century factories. The desired product was workers who would sit silently at their benches all day, behaving identically, to produce identical products, submitting to punishment if they failed to achieve the requisite standards. Collaboration and critical thinking were just what the factory owners wished to discourage.'

Sir Ken Robinson is possibly the most famous modern proponent of this critique of schools, which – in his view – too often fail to prepare children for the world of today because of their rigidity, traditional focus on knowledge and discrete subjects and their standardised approach. But the image of children as passive recipients of education is actually centuries old, with its roots in the romantic Rousseauian notion that:

'Man was born free, and he is everywhere in chains.'

There is concern that the type of education provided by schools will not only fail to prepare children for the future, but will actively hinder their chances of thriving in the 21st century. The words of Jean Jacques Rousseau echo through the writing of Sir Ken Robinson when he wrote:

'We are all born with extraordinary powers of imagination, intelligence, feeling, intuition, spirituality, and of physical and sensory awareness.'

Implicitly – but powerfully – these statements provide the emotional underpinning for centuries of opposition to schooling that prioritises powerful knowledge being passed from subject-expert teachers to novice pupils.

Sir Ken Robinson makes this argument explicit in his proposals for the future of schooling:

'The world is changing faster than ever in our history. Our best hope for the future is to develop a new paradigm of human capacity to meet a new era of human existence. We need to evolve a new appreciation of the importance of nurturing human talent along with an understanding of how talent expresses itself differently in every individual.'

But – just as with the romantic notion underlying these arguments – the idea that education must change to equip children to cope with the future is not new either. At international education conferences and in newspaper columns, it is not uncommon to hear the following argument advanced:

‘We find ourselves in a rapidly changing and unpredictable culture. It seems almost impossible to foresee the particular ways in which it will change in the near future or the particular problems which will be paramount in five or ten years. Under these conditions, much emphasis must be placed in the schools on the development of generalized ways of attacking problems and on knowledge which can be applied to a wide range of new situations.’

But this was written by the educationalist Benjamin Bloom in 1956.

Similarly, we are told that having google perpetually at the tip of our fingers means knowledge no longer matters as it once did. It is not unfamiliar to hear therefore that, and I quote:

‘Educated people are not those who know everything, but rather those who know where to find, at a moment’s notice, the information they desire.’

But this was written in 1914.

So lamentations about out-dated approaches to schooling might not be new, but they are believed widely. These ideas have been repeated throughout the 20th century and are no less popular now.

ResearchED therefore has a vital role to play in promoting evidence-informed voices and adding nuance to the polarised debates that often obscure the way forward in education.

In the ‘knowledge vs skills’ debate, whatever side of the debate you are on, and whatever other purposes you believe education should serve, we all share some common aims. It is our shared goal to ensure that the next generation is best prepared to work collaboratively on, think critically about, and solve difficult problems.

To this extent, the debate is not a debate about ends. It is about means. How do we prepare the next generation to solve the great problems of the future? How do we ensure that all pupils – whatever their background – are equipped to thrive in the wide variety of jobs they will enter?

We all seek the answers to these questions. And differences of opinion of course should be expected. But we should also expect opinions to be evidence-informed, which is where ResearchED plays such an important role.

But even on the question of means, there is much shared common ground. Take literacy, for example. Today is International Literacy Day. Whilst all teachers want to ensure that pupils learn to read early in primary school, debate has raged for decades as to how best to achieve this end.

Since 2010, the government has focused relentlessly on ensuring teachers use evidence-based systematic synthetic phonics programmes, resulting in a

revolution in the success of literacy teaching in primary schools. In 2012, just 58% of 6 year olds were on track to be fluent readers. Last year, that figure stood at 81% – with the number rising to 92% for 7 year olds.

By ensuring that children know the letter-sound correspondences of the English alphabetical code and teaching children the skill of ‘blending’, evidence based phonics programmes have transformed the success of early reading instruction.

The overwhelming evidence in favour of using a systematic phonics programme irrevocably changed the debate about literacy. No longer is the question whether to use a ‘whole word’ approach or a phonics approach. Instead, the question is which phonics programme is most effective. The evidence – and teachers’ application of it – means that the debate has evolved. Better-informed and more research-inclined teachers have left behind the small number of commentators who continue to bemoan the use of phonics and continue to promote ‘look and say’.

And a similar process is underway in the ‘knowledge vs skills’ debate. This debate must consider the implications of decades of cognitive science research. There are two cognitive scientists – closely associated with ResearchED – who have helped to shape and sharpen my thoughts in this debate.

Professor Daniel Willingham adorns the front cover of my copy of the ResearchED magazine. He has written extensively and authoritatively about critical thinking and the difficulties faced by teachers trying to teach it discretely. Describing these difficulties, he wrote:

‘Knowing that one should think critically is not the same as being able to do so. That requires domain knowledge and practise.’

The challenge to proponents of a radical overhaul of schooling, which prioritises skills in place of powerful knowledge, is how to reconcile this view with the cognitive science research pointing to the importance of knowledge. Critical thinking relies on deep reserves of domain-specific knowledge. Using an example from an American history curriculum, Willingham exemplifies this point. He says:

‘Knowing that a letter was written by a Confederate private to his wife in New Orleans just after the Battle of Vicksburg won’t help the student interpret the letter– unless he knows something of Civil War history.’

The ‘knowledge vs skills’ debate is concerned with how we best prepare pupils to think critically about problems, not whether we want children to think critically – whatever the image of ‘factory schools’ might imply.

Professor Paul Kirschner – who is speaking today – is a world-leading cognitive science researcher whose contributions to our understanding of education include the seminal paper ‘Why minimal guidance during instruction does not work’ – written with John Sweller and Richard Clark.

Writing about the importance of domain-specific knowledge and the differences between experts and novices– again with John Sweller – he emphasises the

importance of knowledge. And I quote:

'When given a problem to solve, novices' only resource is their very constrained working memory while experts have both their working-memory and all the relevant knowledge and skill stored in long-term memory.'

If we want pupils to become the great critical thinkers and problem solvers of the future, it is incumbent upon schools to ensure children are endowed with the powerful knowledge which best equips them to approach problems as experts.

This knowledge-rich approach guided our reform of all the subjects in the National Curriculum in 2014, and we plan to build on this success through the Curriculum Fund, where we are making £7.7 million available over the next five years to encourage greater use of well-sequenced, high quality, knowledge rich curriculum programmes in classrooms.

But the reliance of skills on domain-specific knowledge stored in long term memory is not the final word in the 'knowledge vs skills' debate. What knowledge leverages the greatest reward? How often do we need to update or redefine the knowledge future generations will need? How do we help children to use and apply their knowledge to think critically about a problem?

These questions, concerned with the detail that underlies the 'knowledge vs skills' debate, affect pedagogy, and they affect policy. Consider, for example, the change in the national curriculum towards a focus on computer science and away from ICT.

This curriculum change reflects how the knowledge needed to thrive can and does evolve. Just as touch-typing and word processing were – and are – important, it is crucial that the next generation leaves school with an understanding of the principles of programming. And early indications are that, this year, there have been huge increases in the number of pupils taking computer science at GCSE and A level.

Just as proponents of a greater focus on skills must have regard to the evidence on the importance of domain-specific knowledge, we must also understand the detail and the nuances in the arguments about the vital role of knowledge in education.

Evidence-informed debates foster that nuance and advance our understanding. ResearchED provides a platform for a plurality of evidence-informed voices, so that teachers and researchers can share their knowledge and move beyond the tribalism that too often attracts headlines and blights progress.

ResearchED doesn't have the power to stop lamentations about factory schools turning out identikit pupils ready for 19th century factory labour. But it has helped to advance an understanding of evidence, inoculating teachers from ideological headwinds and helping to inform better teaching – and, I have to say, better policy.

For that reason, it is a pleasure to be back again.

Thank you.