

Speech: Nick Gibb: empowering teachers to deliver greater equity

It is an honour to open the [International Summit on the Teaching Profession](#). This conference provides an excellent opportunity for politicians, unions and teacher representatives from the nations of the UK and countries from around the world to discuss how we can further improve education.

Empowering teachers to provide a great education for their pupils is at the heart of what I do as School Standards Minister. Increasingly, we know what can be done to improve educational outcomes for all pupils. Improving outcomes is not simple, but the principle underlying important reforms is: knowledge is power.

Knowledge of evidence about effective teaching practice; knowledge of cognitive science research into memory; and a knowledge-rich curriculum that empowers all teachers to deliver improved educational outcomes for all pupils.

Increasingly, education research is exposing outdated theories that still abound in many circles. In their 2013 paper [Urban legends in education](#), Kirschner and Van Merriënboer expose 3 prevalent education myths linked to the fallacy that pupils should direct their education and not teachers.

These 3 myths conflict with knowledge of cognitive science and best teaching practice. Providing teachers with this myth-busting research improves their knowledge and empowers them to deliver high-quality lessons.

The first myth is that pupils today are 'digital natives' and, consequently, their education should involve immersion in digital technology. However, Kirschner and Van Merriënboer's paper concludes that a pupil's education might suffer if teaching tries to play to the perceived technical aptitude of millennial pupils.

The second myth is that pupils have unique learning styles and that education must be tailored to the learning style of each pupil. In my experience, this is a particularly persistent myth in schools in England.

The Education Endowment Foundation – an independent charity set up by the government in 2011 to find out what works in education – [concluded the following about learning styles](#):

Studies where teaching activities are targeted towards particular pupils based on an identified learning 'style' have not convincingly shown any major benefit, particularly for low attaining pupils. Impacts recorded are generally low or negative.

Kirschner and Van Merriënboer conclude similarly that:

Though very appealing, there is no solid evidence that learning styles—as such—actually exist and that there is any benefit to adapting and designing education and instruction to these so-called styles.

In accordance with the EEF, they also remark that teaching to the perceived learning styles of pupils may have a negative effect on the outcomes of pupils.

The third myth is all that one needs to know and learn is that teaching knowledge is redundant because children can now find out whatever they want with the click of a mouse. The corollary of this belief is that teaching should instead focus on generic skills and competencies.

This myth still abounds at international education conferences – as many people here will know. Now that pupils have a seemingly unlimited amount of knowledge stored on their smart phone devices – so goes the argument – all that is required is to ensure pupils learn how to learn.

This myth is intuitively appealing given the technological boom we are living through now, but this argument is not new. In 1914 it was argued that:

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.

It was wrong in 1914 and it is wrong now. As [ED Hirsch wrote in 2000](#):

There is a consensus in cognitive psychology that it takes knowledge to gain knowledge.

Knowledge begets knowledge. It does not suffice to provide pupils with tools to find knowledge. Decades of research tells us that in order to make sense of and retain new information, pupils must have pre-existing knowledge with which to link this new information.

Ensuring teachers have access to high-quality research empowers them to deliver lessons that avoid falling for these alluring, but fallacious myths, improving educational outcomes for all pupils.

Many of the myths that pervade education use the context of the 21st century as justification. Teachers are told that this new millennium requires an education that gives pupils freedom to problem solve, so that they develop the skills they need to be successful in modern economies.

Teachers, it is argued, should step back and facilitate problem-solving activities and allow pupils to hone their critical thinking. But the evidence against this position is now overwhelming, and we must ensure that teachers

are exposed to this evidence.

For example, [research conducted in Holland](#) by Kroesbergen, Van Luit and Maas compared outcomes for low-achieving pupils split into 2 groups. One received teacher-led instruction, the other was taught using a child-centred method. The experiment considered the automaticity of pupils and their ability to problem solve. Pupils provided with explicit teacher instruction significantly outperformed their peers in that experiment.

And similar results have been replicated the world over. Klahr and Nigam from the University of Pittsburgh, [investigating the relative effects of direct instruction and discovery learning](#) found:

Not only that many more children learned from direct instruction than from discovery learning, but also that when asked to make broader, richer scientific judgments, the many children who learned about experimental design from direct instruction performed as well as those few children who discovered the method on their own. These results challenge predictions derived from the presumed superiority of discovery approaches in teaching young children basic procedures for early scientific investigations.

And the [2015 PISA results](#) – which examine the ability of pupils to solve scientific problems – also support this finding. In all but 3 countries, pupils reporting higher levels of teacher-directed instruction achieved significantly better results. In the majority of countries, pupils reporting higher levels of enquiry-based instruction achieved significantly worse results.

The research is clear on this point: it is not by allowing pupils to behave like scientists in lessons that they are best prepared to become the scientists of the future. It is by being taught scientific knowledge that pupils are best prepared to become the scientists of the future. Standing on the shoulders of giants first requires you to climb up to their shoulders.

Providing teachers with access to this pedagogical research is critical to improving outcomes. Not only does the research increasingly show what works best, we are beginning to understand why this works best. And this understanding is critical to improving not just outcomes, but equity too.

Thanks to our greater understanding of cognitive science, we know that people have very limited working memories, allowing them to hold 3 to 7 pieces of information at a time. However, our long-term memory is limitless – for all practical purposes. Hence if teachers want pupils to be able to solve problems or think critically about a topic, it is important that pupils already have domain-specific knowledge about this topic stored in their long-term memory.

[Sweller's seminal work on cognitive load](#) demonstrated the importance of domain-specific knowledge for pupils to successfully solve problems. This area of research supports the view that designing a knowledge-rich curriculum

that ensures pupils are taught a broad range of knowledge, best prepares pupils to solve problems by applying their knowledge.

[Bruner and Ross's earlier work on problem solving](#) had already demonstrated the importance of guiding pupils away from mistakes when helping young children to solve problems – hence reducing the cognitive complexity of solving a novel problem. Amongst the other important features of instructing children to solve a problem, Bruner and Ross also highlighted the importance of highlighting critical features of a problem and modelling solutions to a task – both key features of high-quality teaching.

And the knowledge underpinning teacher-led instruction has now been disseminated into general [principles of instruction](#) that teachers can easily refer to when designing lessons.

Knowledge is power for teachers. But it is also power for pupils.

Ensuring all pupils have access to the knowledge they need is a question of improving educational outcomes and equity. In England, the government has placed an emphasis on ensuring all pupils are taught a knowledge-rich curriculum.

The Sutton Trust – a respected charity that champions social mobility – [has recently produced evidence](#) that in England high-ability disadvantaged pupils are less likely than their more advantaged peers to attend a school that teaches a stretching academic curriculum. Equally, the Sutton Trust has produced [evidence suggesting that schools pursuing a curriculum](#) that prioritises an academic core of subjects is beneficial for pupils – particularly those from disadvantaged backgrounds.

[Blanden and Macmillan](#) – examining inequality and social mobility – suggested that focusing on standards alone was not enough to encourage social mobility. Instead, focus should also be given to spreading access to the most high-value qualifications.

In England, the government has incentivised secondary schools to teach pupils English, maths, at least 2 sciences, either history or geography and a foreign language, so that more pupils – irrespective of background – take these high-value qualifications at age 16. Not only do these qualifications provide pupils with a broad academic education, but they also facilitate access to the best universities in the country.

In order to improve standards and improve equity, it is imperative that all pupils – irrespective of background – are taught a broad knowledge-rich, academic and high-status curriculum covering the core academic subjects mentioned above alongside a rich arts education that gives pupils a deeper appreciation of their culture.

Knowledge is power. We must empower teachers to pursue well-evidenced teaching methods. We need to ensure teachers have up-to-date knowledge of cognitive science and the implications for what and how to teach. And we need to design knowledge-rich curricula so that pupils are given the greatest

opportunity for success.

Thank you.