

Speech: Nick Gibb: the evidence in favour of teacher-led instruction

It is a pleasure to follow the speech of my friend and fellow E. D. Hirsch enthusiast, His Excellency Dr Jareonsettasin.

The theme of this session contains 2 statements and 1 question. Firstly, that international rankings are useful for policy makers. Second, that today's students will be rewarded not for what they know, but what they do with what they know. And third, how can evidence or should evidence be turned into policy, action and change?

I shall begin by focusing on the second of these. And then what that means for the answer to the third – in particular for approaches to teaching. In the 12 years since I became a Shadow Minister for Education, I have never met anyone who advocates teaching children knowledge with the explicit intent that it not be used or applied. The absurdity of this thought highlights that the oft-heard statement we are discussing today is effectively a tautology. It is plain to anyone who considers the matter: one must possess knowledge in order to use and apply it. As E. D. Hirsch has said, knowledge builds on knowledge.

Consider the example of simplifying fractions: a child cannot simplify the fraction $21/35$ down to $3/5$ without first possessing knowledge of the 7 times tables.

The ability to use and apply knowledge necessarily rests on possessing knowledge. So long as we consider using and applying knowledge to be of benefit – and we all do – logic suggests that the statement under consideration is both true and so bland as to elucidate next to nothing.

But that is not to say that this statement is without consequence.

This statement and similar statements are used throughout the world to argue for so-called 'child-centred' pedagogies. These 'child-centred' approaches to teaching focus on eliciting and developing ethereal and often poorly-defined skills in pupils. Teacher focus is turned away from ensuring all pupils are taught the core of academic knowledge that they need, and instead teachers attempt to inculcate creativity and problem-solving as if these skills transcend domains of knowledge. We know from decades of research – and most recently from the boom in understanding the workings and limits of human cognition – that this view is deeply misguided.

Children need to be taught the body of knowledge that we all take for granted. In too many countries – including Britain – educationalists have argued against knowledge and in favour of skills. I believe this has been deeply damaging to millions of children, particularly those from disadvantaged backgrounds.

The question before us today is 'how can evidence or should evidence be turned into policy, action and change?' The answer is, I believe, important but straightforward. We should eschew easy-sounding tautologies and truisms that advocate by stealth or accident teaching methods that are not effective and we should honestly assess what the evidence says about the efficacy of knowledge-rich curricula and teacher-led teaching methods.

The work of E. D. Hirsch – the educationist who has most influenced my thinking – has made clear the importance of ensuring all pupils are taught the body of academic knowledge they need to be culturally literate. His work on developing the core knowledge curriculum has inspired the work of many of the most successful and innovative academies and free schools in England.

Whilst the curriculum is possibly the most important component in great schools, the approach to teaching is also integral to the success of pupils in being able to use and apply their knowledge. Many in the world of education assume that for pupils to become proficient in using their knowledge of science and history, they must be allowed to behave like scientists and historians in lessons. Teachers are encouraged to prepare lessons that are centred on the interests of pupils and discouraged from teacher-led approaches.

Teachers are implored to allow pupils to debate and discuss ideas, design and carry out their own scientific experiments and analyse historical sources. In the immediate aftermath of the [PISA report publication](#) last year, many educationists seized on the results to call for a more 'child-centred' approach to teaching.

One example was Eric Mazur, Harvard physicist and creator of 'Peer Instruction', a 'child-centred' group-work approach to teaching. In the immediate aftermath of the PISA results, he implored Australians to recognise that there is something amiss about education in the Western world – which he sees as too focused on traditional methods.

He said:

If you teach interactively, where students are being taught through questioning and helping each other, you can actually accomplish a lot. If you teach the old-fashioned way with the instructor being the source of knowledge, then the highest level you set for the students is the teacher. If you teach by inquiry, then it is possible for students to exceed the teacher.

This seductive sounding remedy to Western education was made after Mazur reviewed the PISA 2015 results. And yet, in all but three countries, pupils reporting higher levels of teacher-directed instruction achieve significantly better results. In the majority of countries pupils reporting higher levels of enquiry-based instruction achieve significantly worse results.

This is what the PISA report has to say:

Perhaps surprisingly, in no education system do students who reported that they are frequently exposed to enquiry based instruction (when they are encouraged to experiment and engage in hands-on activities) score higher in science. After accounting for students' and schools' socio-economic profile, in 56 countries and economies, greater exposure to enquiry-based instruction is associated with lower scores in science.

In fact, the PISA report found that teacher-led approaches such as explaining how a science idea can be applied to a number of different phenomena had a net positive impact on pupil scores. Whereas allowing pupils to design their own experiments; allowing pupils to investigate and test their ideas; holding class debates about investigations; and requiring pupils to argue about science questions and a number of other 'child-centred' teaching approaches resulted in a net negative impact on science outcomes.

And the pupils who took the PISA exams were not being tested on their ability to recall scientific facts. That is not what PISA sought to test. PISA was testing how well pupils could use and apply their scientific knowledge. And the results were clear: teacher-led approaches were more effective than 'child-centred' approaches.

But it's that word 'surprisingly', used by PISA in their report, that troubles me. Why was it surprising to the authors of the PISA report that enquiry-based approaches produce lower results? I believe it is because much modern education thinking continues to be influenced, often deeply entrenched, by well-established, but poorly evidenced educational doctrine.

A 2016 OECD report into the teaching of maths – making all too familiar assumptions about the importance of 'child-centred' approaches – stated that 'educationalists have encouraged giving students more control over their own learning' for decades.

John Dewey – the famous American educationist and godfather of the 'child-centred' education movement who was born in 1859 – is quoted as having said:

Give the pupils something to do, not something to learn; and the doing is of such a nature as to demand thinking; learning naturally results.

In 'Democracy and Education', written in 1938, Dewey criticised the teacher-led approach to teaching science. He wrote:

Pupils begin their study of science with texts in which the subject is organized into topics according to the order of the specialist. Technical concepts, with their definitions, are introduced at the outset. Laws are introduced at a very early stage, with at best a few indications of the way in which they were arrived at. The pupils learn a 'science' instead of learning the scientific way of

treating the familiar material of ordinary experience.

Dewey's ideas and arguments remain influential in education around the world, but as Douglas Carnine wrote in 'Why Education Experts Resist Effective Practices':

In education, the judgements of experts frequently appear to be unconstrained by objective research.

The question before us today is how can evidence inform policy. The evidence is clear – however much it may shock the pre-conceived expectations of some education experts. It is imperative that pupils are taught a knowledge-rich curriculum. And the body of evidence on effective teaching practice is now overwhelming. The PISA results from last year serve to confirm the ever-growing body of international evidence on this point, that teacher-led instruction is more effective than child-centred, enquiry-based approaches.

Project Follow-Through is, to this day, the most expensive piece of education research ever carried out. Throughout the 1960s and 1970s, teaching approaches were measured across the United States. Direct Instruction, a teacher-led programme, comprehensively out-performed a multitude of 'child-centred' approaches.

Kirschner, Sweller and Clark's 2006 paper 'Why Minimal Guidance During Instruction Does Not Work' dispels many of the myths which surround the belief in 'child-centred' instruction. Despite being popular and intuitively appealing, argue the authors, 'these approaches ignore both the structures that constitute human cognitive architecture and evidence from empirical studies over the past half-century that consistently indicate that minimally guided instruction is less effective and less efficient than instructional approaches that place a strong emphasis on guidance of the student learning process.'

Andersen and Andersen's 2015 paper 'Student-Centred Instruction and Academic Achievement' carried out extensive investigation into teaching methods in Denmark. Andersen and Andersen concluded that 'a student-centred instructional strategy has a negative impact on academic achievement in general, and for students with low parental education in particular.'

It is for this last reason that Douglas Carnine's swipe at education experts is so pertinent. Poor teaching methods harm all pupils, but a growing body of research suggests that it harms disadvantaged pupils most of all.

The evidence must constrain education experts. Their recommendations must be evidence-based. As education ministers, we have a vital role – and I would even say a duty – to base our policies on sound evidence, not fashionable, experimental theory. And as I hope I have made clear, I believe that the evidence is overwhelming.

The most effective, teacher-led practices should be twinned with a knowledge-

rich curriculum. That is how evidence can and should be turned into policy, action and change.