CHARTERED COLLEGE OF TEACHING

What is a 'knowledge-rich' curriculum?

In the last few years, there has been a fascinating debate developing around the concept of a 'knowledge-rich curriculum'. Sometimes this is referred to as knowledge-led or knowledge-based. The debate has been informed by discussions from cognitive science, such as the role of knowledge in underpinning reading and understanding (e.g. Willingham, 2010). It has also been informed by a values-led philosophy based on empowerment through teaching 'powerful knowledge' (e.g. Young and Muller, 2013). Along with plenty of others, my initial reaction was to reject the idea that a curriculum could be 'knowledge-rich'; I saw it as a kind of hubristic rebranding of regular good practice. As a science teacher, I've always felt that my curriculum was packed with knowledge and, without question, I've seen numerous cohorts sit lots of GCSE exams, year after year, each requiring significant knowledge. However I'm increasingly convinced that a knowledge-rich curriculum is actually an important concept that we ought to embrace.

From my experience working with a range of schools in varying circumstances over the last few years, I would say that not only is this approach often different to the default practice, but it also offers a secure route to the higher standards that we're continually seeking. Even if it's not new, at the very least it represents a shift in emphasis with multiple benefits.

What is a knowledge-rich curriculum in principle?

Based on my reading of the debate, I would suggest that there are four components:

Knowledge provides a driving, underpinning philosophy

The *grammar* of each subject is given high status. Here, 'grammar' relates to the concepts explored by Martin Robinson in *Trivium 21c* (Robinson, 2013) – the knowledge content and traditions within subject disciplines. In a knowledge-rich curriculum, the specifics of what we want students to learn matter and subject traditions are respected. Skills and understanding are seen as forms of knowledge and it is understood that there are no real generic skills that can be taught outside of specific knowledge domains. Acquiring powerful knowledge is seen as an end itself; there is a belief that we are all empowered through knowing things and that this cannot be left to chance. There is also a sense that the creative, 'rounded and grounded' citizens we all want to develop – with a host of strong character traits – will emerge through being immersed in a knowledge-rich curriculum.

The knowledge content is specified in detail

Units of work are supported by statements that detail the knowledge to be learned – something that can be written down. We do not merely want to 'do the Romans'; we want children to gain some specified knowledge of the Romans as well as a broad overview. We want children to know specific things about plants and about the Amazon Rainforest, WWII, Romeo and Juliet and climate change. We want children to have more than a general sense of a topic through vaguely remembered *knowledge encounters;* in addition to a range of memorable, enriching experiences from which important tacit knowledge is gained, we want them to amass a body of specific declarative and procedural knowledge – not ad hoc but planned. This runs through every phase of school: units of work are not defined by headings but by details: e.g. beyond the 'environmental impact of fossil fuels', the specific impacts are detailed.

Knowledge is taught to be remembered, not merely encountered

A good knowledge-rich curriculum embraces ideas from cognitive science about memory, forgetting and the power of retrieval practice. Our curriculum is not simply a set of encounters from which children form ad hoc memories; it is designed to be remembered in detail – to be stored in our students' long-term memories so that they can later build on it, forming ever wider and deeper schema. This requires approaches to curriculum planning and delivery that build in spaced retrieval practice, formative low-stakes testing and plenty of repeated practice for automaticity and fluency.

Knowledge is sequenced and mapped deliberately and coherently

Beyond the knowledge specified for each unit, a knowledge-rich curriculum is planned vertically and horizontally, giving thought to the optimum knowledge sequence for building secure schema – a kinetic model for materials; a timeline for historical events; a sense of the canon in literature; a sense of place; a framework for understanding cultural diversity and human development and evolution. Attention is also given to known misconceptions, and there is an understanding of the instructional tools needed to move students from novice to expert in various subject domains.

Importantly, these four elements lead to a curriculum far more expansive than a reductive set of knowledge statements. A knowledge-rich curriculum is packed with experiences and is driven by a strong set of values about what matters; it has soul, moral purpose, humanity.

What is a knowledge-rich curriculum in practice?

The best way to attack this is through some examples:

Exhibit A: Parliament Hill science

At this Camden school, the science department has developed a superb set of resources to support students with learning. This is linked to an approach they call FACE It – Facts, Apply in context, Connect to wider learning, Exam practice. The idea is that students need to master the recall of basic science facts and concepts on the road to deep understanding and the ability to apply knowledge to problem-solving. They are provided with excellent study guides in booklet form. Written by the staff, they are more detailed than a knowledge organiser but stripped down from what might be in a textbook. Significantly, embedded in the booklets, students are given the quizzes that will be used to test them on their knowledge. They are seen in advance so that students can learn the form in which knowledge is sometimes expressed. It guides their learning. Students are asked to learn the material after being taught it and then take the quizzes without any study aids.

The aim is that all students get all the questions right. That's the point. Their theory is that if students can't get the simple factual recall questions right, they have no chance of then getting the 'application to new contexts' questions right. This embedded quizzing teaches lower-attaining students to build confidence, gaining important study skills. It also helps a team of teachers to focus their energies and to plan collaboratively.

Exhibit B: Trial by ordeal

If you were teaching the GCSE history theme study on Crime and Punishment, you might show the relevant BBC Bitesize video: https://www.bbc.com/education/clips/zrtk2hv. It's a great, colourful story, full of information, examples, facts, concepts and gory details. You could watch it and have a wonderful, engaging discussion during a lesson. But, some days and weeks later, what would students remember? If you hope that students will recall as much as possible, simply through absorbing information or by making their own notes, you're going to get a wide range of responses.

For certain, the weakest students will have the worst notes and, in all likelihood, the lowest level of recall.

In a knowledge-rich approach, we don't leave this to chance. We spell it all out. Alongside watching the video and having the discussion, we make the note-making absolutely explicit. *These are the key facts; this what everyone must know; this is what you must all remember. Not only this, but at least all of this* – 'this' being a set of factual knowledge written down in an organised resource that students are given or create under guidance. You might choose to train students to produce their own structured notes in a quizzable format or you might just give them the notes and focus on the retrieval practice and application. But what you won't do is allow students to scrabble around dredging memories for half-remembered titbits of facts in the hope that they have a coherent picture of the idea of trial by ordeal. You control it; you are precise about it.

Is this new? To many teachers and in many schools, I think it is – especially once the cognitive science combines with the idea of subject grammar. It's way beyond reductive ideas about rote learning and regurgitating facts for no purpose. It's about ensuring that all students always have a secure knowledge platform, allowing them to reach the next level. In truth, it doesn't really matter whether we did this before… some of us will have, some won't, and that will depend on context, subject, phase and which decade we started teaching in. The point is that we should all be doing it now. It's actually rather exciting!

References

Robinson M (2013) *Trivium 21c: Preparing Young People for the Future with Lessons from the Past.* Carmarthen, Wales: Independent Thinking Press.

Willingham D (2010) *Why Don't Students Like School?* San Francisco, CA: Jossey Bass.

Young M and Muller J (2013) On the powers of powerful knowledge. *Review of Education* 1(3): 229–250.

The full-length online version of this article includes a list of blogs for further reference. This can be accessed at: impact.chartered.college.