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ZEST FOR LEARNING... INTO THE RAINFOREST OF TEACHING
LEADERSHIP ISSUES, TEACHING AND LEARNING, UNCATEGORIZED

What is a knowledge-rich curriculum? Principle and Practice.

POSTED BY TOM SHERRINGTON · JUNE 6, 2018 · 45 COMMENTS

FILED UNDER CURRICULUM, KNOWLEDGE, TEACHING

I have found recent discussions and debates about the concept of a 'knowledge-rich curriculum' – or knowledge-led; knowledge-based – fascinating. Some of this has been explored brilliantly in various blogs. Here is a selection:

- Summer Turner <https://ragazzainglese.wordpress.com/2018/02/14/pub-quiz-or-published-what-are-the-aims-of-a-knowledge-rich-curriculum/>
- Jon Brunskill [I'm bringing knowledge back. | Pedfed](#) which is worth reading along with his school's website info on curriculum. [Reach Academy Feltham | Approach to Curriculum Design](#)
- Ben Newmark. [Planning a knowledge curriculum.](#)
- Rosalind Walker. [My #rEDBrum talk: The Nature of School Science Knowledge](#)
- Mark Enser: [Knowledge in the classroom | Teaching it Real](#)
- Rebecca Foster and Claire Hill: [On our #rEDDurrington presentation: Practical approaches to bringing research-informed practice to the classroom, the department and whole school | The Learning Profession](#)

There are also numerous blogs from Michael Fordham ([Knowledge and curriculum – Clio et cetera](#)), Clare Sealy ([Memory not memories – teaching for long term learning – primarytimerydotcom](#)) or Christine Counsell: [the dignity of the thing](#)

Along with plenty of others, I initially struggled to get my head around this idea. As a science teacher I've always felt 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, having engaged in the debate, read Martin Robinson's [Trivium 21c](#) and Dan Willingham's work, I'm increasingly convinced that a knowledge-rich/focused/led/based curriculum is an important concept that we ought to embrace.

Based on my work with lots 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, it offers a secure route to the rising standards that we're continually seeking.

What is a knowledge-rich curriculum in principle?

Based on various ideas pulled from the blogs and books cited above, I would suggest there are four components:

Knowledge provides a driving, underpinning philosophy: The *grammar* of each subject is given high status; the specifics of what we want students to learn matter and the traditions of subject disciplines 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 things through vaguely remembered *knowledge encounters*; in addition to a range of experiences from which important tacit knowledge is gained, we want them to amass a specific body of declarative and procedural knowledge that is planned. This runs through every phase of school: units of work are not defined by headings but by details: eg beyond 'environmental impact of fossil fuels', the specific impacts are detailed; beyond 'changes to transport in Victorian Britain', specific changes are listed.

Knowledge is taught to be remembered, not merely encountered: A good knowledge-rich curriculum embraces learning 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.

What is a knowledge-rich curriculum in practice?

The best way to attack this is through some examples:

Exhibit A: The Romans

If you imagine some Year 8s looking back to their time in Year 4, when they 'did the Romans', what would we want them to remember? They might remember their trip to the ruins or the museum, the video of the gladiators and something about togas and what the soldiers looked like. They might

have a general sense that Romans had an empire and that they were around a long time ago. In a knowledge-rich curriculum they would remember all of this but would also be expected to know the terms *empire*, *emperor*, *centurion*, *amphitheatre*, *aqueduct*. They would know who Julius Caesar was; they would know a set of dates, placing the Romans in time in relation to Jesus and 1066 and be able to identify the location of key Roman sites in the UK and Europe.

All of the teaching could be supported by giving students a knowledge organiser with all the key facts on it from which various quizzes and tests are derived to support their retrieval practice. This would be part of a long-term plan that ensured students returned to Roman history beyond Year 4; there would be an expectation that their knowledge would be built on, not left behind.

Exhibit B: 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 their FACE It approach described in this post: [FACE It. A formula for learning.](#) 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; more detailed than a knowledge organiser but stripped down from what might be in a text-book. Here's a sample from the GCSE unit on genetics and selection.

Significantly, students are shown the quizzes that will be used to test them on their knowledge. They are embedded in the books. 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 and has paid dividends. It also helps a team of teachers to focus their energies and to plan collaboratively. It's a Godsend for any new or non-specialist teachers too.

Exhibit C: Trial by Ordeal

If you were teaching the GCSE History theme study on Crime and Punishment, you might show this BBC Bitesize video: <https://www.bbc.com/education/clips/zrtk2hv>. It's a great colourful story full of information, examples, facts, concepts, 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 hoped students would 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 – and for certain, the weakest students will have the worst notes and, in all likelihood, the lowest level of recall. It's not enough.

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:

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 all students to scabble 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.

Exhibit D: Sequenced knowledge of Motors.

This is my favourite bit of teaching physics – one of them at least. If I teach this through a knowledge-rich approach I want to make sure that the knowledge builds securely. Firstly, say in Year 8, through demos and practicals, I want students to build their tacit knowledge of the key phenomena: magnetism, magnetic fields, attraction and repulsion, the idea of ‘strength’ of a magnet; forces; current in circuits – each with direction and magnitude; the idea that phenomena interact. All of this can be highly qualitative – simply focusing on changes of direction and the simple awe and wonder thing that motors work at all in our universe. I will also secure recall and understanding of some key terminology.

Later, as part of a spiral curriculum, avoiding cognitive overload and building on prior knowledge, I need students to understand and use $F = BIL$ and Fleming’s left hand rule. I need them to know the terms, that magnetic flux density more or less means ‘strength’, has a symbol B and units Teslas. I need them to learn the equation by heart and practise using it and manipulating it. All of that needs focus – so that they think about the equation away from the buzzy distraction of a sparking, whizzing motor. I build the sequence carefully, deliberately with a focus on practice and recall and schema-building.

Is this new? Well, yes I think it is to many teachers and in many schools – especially once the cogscience combines with the idea of subject grammar. It’s way beyond some reductive idea of rote learning and regurgitating facts for no purpose. It’s about ensuring students always have a secure knowledge platform allowing them to reach the next level. But it’s not too important (is it?) whether we did this before... some of us will; some won’t and that will depend on context, subject, phase... The point is that we do it now. It’s actually rather exciting....

Update:

Since posting this, Debra Kidd has extended/deepened the ideas here in this superb post. Knowledge is just the start.... <https://debrakidd.wordpress.com/2018/06/11/a-rich-curriculum/>. Read together, I think we’ve nailed it!

Another Update

This post by Michael Fordham makes perfect sense to me: <https://clioetcetera.com/2018/06/12/is-it-more-important-to-understand-than-to-know/> Understanding is really about *what* we know... the knowledge. Now we’ve nailed it.

Discussion

45 thoughts on “What is a knowledge-rich curriculum? Principle and Practice.”

1. Reblogged this on [DT & Engineering Teaching Resources](#) and commented:
What is a knowledge-rich curriculum? Principle and Practice.

POSTED BY [DT & ENGINEERING TEACHING RESOURCES](#) | [JUNE 6, 2018, 10:24 AM](#)
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2. Great blog. Good points. Appreciates that it's not new but that the newly explicit emphasis is of considerable value.
Lower case t for tesla (from my knowledge-based curriculum of the early 1980s) 😊

POSTED BY [DODISCIMUS](#) | [JUNE 6, 2018, 8:17 PM](#)
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- o You're right! T is symbol for teslas!

POSTED BY [TOM SHERRINGTON](#) | [JUNE 6, 2018, 8:45 PM](#)
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3. Reblogged this on [kadir kozan](#).

POSTED BY [KADIR KOZAN](#) | [JUNE 7, 2018, 7:12 AM](#)
[REPLY TO THIS COMMENT](#)

4. Reblogged this on [THE CHA WEEKLY READER](#) and commented:
What exactly is a knowledge-rich/based/led curriculum? Don't all curricular teach knowledge? This post by Tom Sherrington explains the principles with useful examples and links to some great follow-up reading.

POSTED BY [ADAM PORTER](#) | [JUNE 7, 2018, 2:38 PM](#)
[REPLY TO THIS COMMENT](#)

5. Reblogged this on .

POSTED BY [LONGSANDSCPD](#) | [JUNE 8, 2018, 9:36 AM](#)
[REPLY TO THIS COMMENT](#)

6. Just be careful not to kill the curiosity of the children involved; don't just 'do' their education to them. We emphasise this by ensuring the curriculum is expressed as a series of questions, mapped underneath by the content required.

POSTED BY [JAMESWILDING](#) | [JUNE 24, 2018, 7:53 AM](#)
[REPLY TO THIS COMMENT](#)

7. Im so happy to read this. I've felt a little bit like a rebellious outcast for a while now because I believed in exactly the principles detailed here. You're right, it is new for most teachers and I think this is because of the indoctrination that we go through in initial teacher training. I'd love to hear about ITT institutions that preach knowledge rich teaching.

<http://www.teachinginthenude.com>

POSTED BY [TEACHINGINTHENUDE](#) | [NOVEMBER 20, 2018, 8:05 PM](#)
[REPLY TO THIS COMMENT](#)

8. Reblogged this on [Ridings Educational](#).

POSTED BY [RIDINGS EDUCATIONAL](#) | [FEBRUARY 11, 2019, 12:57 PM](#)
[REPLY TO THIS COMMENT](#)

9. Dear Tom,
So you say you build tacit knowledge FIRST – by the first contact with the physics ? OR would you build explicit Knowledge UPFRONT to gave them the chance to connect what the they observe in the experiments with the declarative knowledge you explained upfront???
- Greetings Renate

POSTED BY RENATE JACKSON | [OCTOBER 25, 2019, 10:25 AM](#)
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