The *Tes* curriculum series

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RESULTS

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THE ARTS
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PHYSICAL EDUCATION
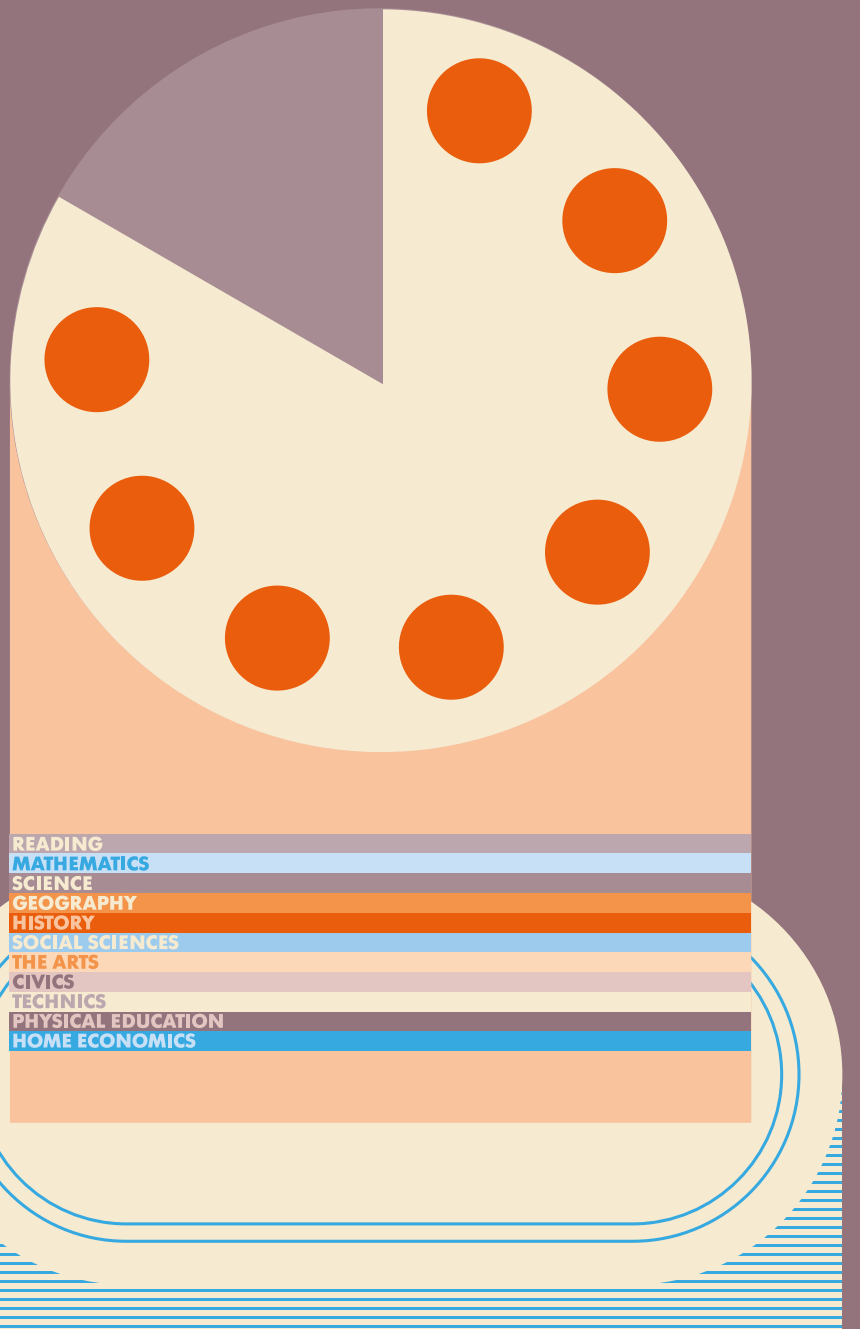HOME ECONOMICS

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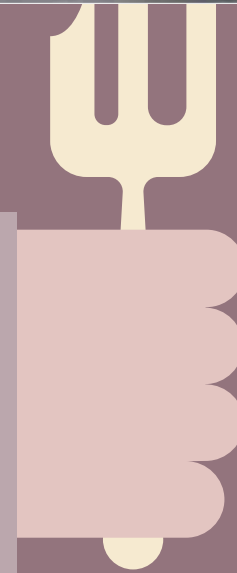David Scott on the productive learning model

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Part one: the theory

The first question: what is curriculum?

There is a need for education professionals to develop a more nuanced concept of what a "curriculum" should be.

At a simple level, the curriculum means a course of study, and this definition is probably the one that is current in most schools: in short, it is the glossy booklet that contains the content to be taught.

But such a conception of curriculum is inadequate for understanding the complex processes of schooling today, because by reducing the curriculum to content, we neglect other curricular practices.

There have been many attempts to provide a more sophisticated definition. Scotland's Curriculum for Excellence, for example, states that the curriculum is "the totality of all that is planned for children and young people throughout their education". That's helpful, because it broadens thinking about what the curriculum comprises. But it is also confusing, because it is so broad that it will mean different things to different people.

To better clarify what curriculum involves, we can look at a number of other concepts that sit within that umbrella term. "Curriculum purposes", for example, state what the curriculum is intended to achieve. "Curriculum provision" refers to the systems and structures established in schools to organise teaching – things like timetabling that act as the "how" of the curriculum. The concepts of pedagogy, or teaching strategies, and assessment methods are also key to an effective curriculum.

We must realise, too, that curriculum planning is fundamentally a political process. Different people will have different views about what should be taught (or, indeed, omitted), and disagreement is to be expected.

An important question to ask is: whose curriculum is it? Some believe that content should be chosen to meet children's needs or interests, while others suggest that there are bodies of knowledge that have intrinsic value or help us to access society's conversation, and that should be taught to all children. Resolving these different viewpoints can be a challenge.

Ultimately, the school curriculum is highly complex, involving considerations of how policy translates into practice, and there is considerable variation in how this happens from school to school. The process of planning and implementing a curriculum can, therefore, be difficult and uncertain.

However, there are some things that we do know, and questions that we should pose as we "make" the curriculum in schools.

A successful curriculum, for example, must pay attention to underlying purposes of education. How does it cover essential content, given that this changes as society changes, without becoming overcrowded? How can it remain relevant when there are competing demands for different content and differing views as to what is important? Where do decisions about content lie?

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Teacher choice is crucial

In the continental view of curriculum and pedagogy (*didaktik* in the German and Nordic tradition), the "didactic triangle" is at the centre.

The three corners of the triangle are symbolised by the curriculum content, teacher and pupil. The metaphor of the triangle suggests that education is always about relationships, between teacher and content, content and student, and teacher and student. The larger contexts of school and society, which influence how these relationships develop and how the teaching in the classroom is designed, are positioned around the triangle.

Today, curricula with performance standards – which state what pupils are expected to know and be able to do, confined to what can actually be assessed – are viewed as an ideal in the international education policy debate. Standards (or standardisation?) are expected to promote higher knowledge results and assessment equality.

It is here, in this process, that the teacher becomes absolutely central. It is really important that it is the teacher who makes the professional choices about the teaching content within the curriculum framework. Likewise, it is essential that the teachers adapt their teaching to the pupils in their classrooms and make the final assessment of their own pupils' specific knowledge development.

Educational goals and curriculum standards are important, but there is an obvious risk that a consequence of performance standards will be a considerable number of national tests and standardised assessment guidelines and materials in order to ensure that all pupils have reached the prescribed standards. In a development from standards into standardisation, teachers risk losing their role as the central actor in the didactic triangle.

Education cannot exist without communication and relationships. The teacher is the key actor in creating and maintaining dialogue and relationships with both the pupils and the teaching content. Thus, the curriculum should establish an inspiring framework for the teacher to act within, rather than being transformed into a form of administrative pressure increasing demands for better knowledge results. Therefore, both teachers and curriculum researchers need to work together to reclaim curriculum as a pedagogical tool.

Such a tool guides and inspires teaching and sets standards for education, while allowing the teachers to use their own professional judgment to make final decisions about teaching content and assessments.

Maintaining the role of curriculum as a framework for educational standards and the role of teacher as the main actor for building educational relationships and making the final educational decisions is significant in preventing curriculum standards from developing into standardisation tools.

Ninni Wahlström is a professor of education and dean of the faculty of social science at Linnaeus University in Sweden. She is associate editor of the Journal of Curriculum Studies and a researcher for several projects on curriculum evaluation

The foundations of a knowledge-rich curriculum

What has been called the "knowledge turn" is now very much in fashion in education, and a growing number of schools see themselves as adopting what is termed a "knowledge-rich curriculum".

This is welcome in its acknowledgement that access to knowledge is the main purpose of schools for all pupils, and not just for those identified as "academic". However, transforming the principle of "knowledge for all" into a way of thinking about – and putting into practice – a school's curriculum and pedagogy turns out to be far harder than many of us who have promoted the principle supposed. This is for reasons both external and internal to schools.

The external reasons refer to factors such as the availability of well-qualified subject-specialist teachers, and the variation of parental support that teachers can call on. Internal factors are not unrelated to the external, and reflect the different ways the leadership of a school might interpret the idea of a knowledge-rich curriculum. With its focus on knowledge content, such a curriculum can easily become little more than a list of subject contents linked to the "direct instruction" model of pedagogy endorsed by cognitive scientists such as Professor Paul Kirschner.

This is not to underestimate the importance of stipulating subject content in a school's curriculum. Nor is it to dismiss the element of direct instruction that distinguishes the purposes of pedagogy from those of everyday conversation. The learner never comes to school as an "empty vessel" but is always a potential seeker looking for new knowledge.

However, on its own, stipulating the knowledge content of the curriculum is not enough. You also need an equivalent emphasis on the pedagogy of teachers, and the process through which students produce knowledge. If pedagogy is forgotten, any curriculum can lead to memorisation rather than understanding.

The knowledge on which a school's curriculum is based is different in both structure and purpose from the knowledge that children acquire in growing up. It has boundaries that divide knowledge up in ways that may appear arbitrary or even alien to a new pupil. This means that all teachers face a pedagogic problem in enabling their pupils to transform the knowledge they bring to school by engaging with the subject knowledge within the curriculum. This transformation is not just a mechanical process of transmission but also a social one, and one that for some pupils will bring problems of identity that they will only overcome if the teacher has earned their trust.

If a school is to achieve its purpose of emancipation, it will rely even more on the specialist subject knowledge of its teachers and their knowledge of how to involve pupils in engaging with that knowledge.

Michael Young is professor of sociology of curriculum at UCL Institute of Education and has been a long-celebrated curriculum thinker both in schools and academia. He has been heavily cited in the "knowledge-rich curriculum" movement

What humans need to know

Do ants have a curriculum? They have been around for far longer than us and equal our biomass – so what's their trick? They speciate. Each time a different environment presents itself, they adapt. This is why there are now more than 14,000 species of ants.

Did early hunter-gatherers have a curriculum? They spread across the world by developing tools and social forms of cooperation that were passed down through methods of cultural learning. But as far as I can tell, they did not have a formalised set of knowledge, skills, attitudes and values to be learned and evaluated.

So why do we need a curriculum? As our communities grew and became more complex, differentiated and specialised, the need to condense, systematise and formalise what was needed to live and flourish as a contributing adult increased.

It's not like modern youngsters can simply watch what adults are doing – too many specialisations are happening in too many locations to keep track. Nor can they wander through a library of collected knowledge, as there is too much stuff, and it is continuously updating and growing. We need specialists who spend time working out what the baseline requirements are for an increasingly complex world.

These specialists don't have it easy. Jobs change, people change, societies change, and people live and love as well as work, so the baseline must allow youngsters to have a platform from which they can step off in different directions.

A general platform would provide the ability to read with meaning to enable access to the vast library of collected knowledge. It would introduce a basic understanding of the language of the universe (mathematics). It would introduce how the universe and life works (science); how our physical earth works (geography); how we have struggled to become who we are (history); how society works (social science); how we experience existence (the arts); how we should live (civics); how to use our basic tools (technics); and how to look after ourselves (physical education) and our family (home economics).

Then we need specific platforms that enable specialisation, and we have to do all of this in around 20 years, because, as human beings, we unfortunately live, decay and die, with our middle years as our most productive.

So, curriculum, as a force, seeks out efficiency and simplicity. We cannot have a youngster emerging from a 20-year process exhausted, sick and jaded. So the condensation has to somehow come with excitement, creativity and inner drive that enables a student to run the difficult and long course with gusto and self-control.

And so a massive effort is continuously at play, and its name is curriculum. It has the simplification and formalisation of existence as its ambit. Each major discovery, innovation and creation that took genius and intense social cooperation to achieve has to be condensed and fitted into a tightly constrained baseline and timeline.

Curriculum is not just an individual effort; it's a part of a great enterprise that sits at the heart of how humanity currently functions, and it will have to square up to the consequences of how we have exploited the Earth and irrevocably changed it with our own powers.

Wayne Hugo is a lecturer and researcher in the school of education, University of KwaZulu-Natal, and has published widely on the topic of curriculum and education more generally

ALAMY

SEND and personalised learning

Thinking of curriculum as a range of subjects, or even a series of experiences, does not capture the complexity of learning for children with SEND. When I think of curriculum, I think more of processes, approaches and style, rather than content.

It is helpful to think about how cross-curricular intentions for learning were used in children's Individual Education Plans. In the main, these were not "targets" in a behavioural sense, but process-driven intentions for learning drawn from our developmental understanding of what is important to individual children's lives.

The starting point for all curriculum planning, however we define it, should always be the child: her developmental needs, health needs and wellbeing. These are the prerequisites of personalised learning and from their assessment, by really getting to know the child, only then can a range of person-centred thematic "topics" be planned.

Personalisation involves stripping away the irrelevant and focusing on the important and relevant. I know how bold this sounds, but professional teams have a responsibility to prioritise learning for children with the most complex needs, and this type of decision-making, particularly when done in partnership with parents, is critical to make the best of precious time in schools.

Vivian Hinchcliffe is a SEND expert with 40 years' experience teaching and researching special education and developing and studying curriculum

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Constructing platforms for learning

Let's start with subjects. Subjects refer to academic or professional communities, outside of schools, who create, test or renew knowledge. Subjects matter because content is not a static, heaven-prescribed, unchanging canon.

Any good curriculum must teach pupils about the nature, origin and renewal of knowledge. That means teaching both substantive knowledge – facts, conventions and skills that must be learned to fluency; and disciplinary knowledge – how new knowledge is built by academics or artists through enquiry, debate and creativity.

Does your curriculum really reflect what science, history or music is, both in breadth of content and in induction into its standards for seeking truth? When teachers really open up a subject, they introduce pupils

to a tradition of enquiry, to rules of evidence and to styles of argument or composition that allow them to enter that tradition, and, eventually, renew it themselves.

Next, work out how you want pupils to be changed by the curriculum, and work back from there. What we know changes what we see: it creates resonance, recognition and capacity for comparison.

If you want the overwhelming majority of pupils to enjoy a classic 19th-century novel, or, better still, a good mix of world literature – Achebe, Naipaul, Bellow, Tolstoy – by Year 10, then don't wait until Year 10 to drag them through a Dickens.

Consider what other novels, and in what sequence, will ensure that the typical GCSE question "What effect does it have on the reader?" is genuinely answerable because pupils have read enough great literature for

a new text to actually have an "effect" on them. If you want all Year 9 to be inspired by the soundworld of contemporary Scottish composer James Macmillan, then be more thorough with Bach, Britten and Scottish folk music during Years 7 and 8. Use the curriculum to prepare their ears.

Such temporal orientation is the opposite of planning a curriculum like an audit. Too often, schools start with big ideas such as "creativity", "critical thinking" or "resilience" and then imagine that they've secured those things by plonking them all over the curriculum. This is curriculum as random sprinkling.

To be serious about fostering, for example, creative composition in music and English is to be much more deliberate, especially for the disadvantaged or low-attaining. Why should they miss out on Achebe or Bach? Let each layer of knowledge have a cumulative effect on what pupils can notice and do.

Finally, make the curriculum bigger than the sum of its parts. Clarity about each subject's disciplinary tradition allows us to make intelligent connections between disciplines, as opposed to crazy cross-curricularity. If you want pupils to be able to use "convincing and compelling language" when describing a great painting for English language GCSE, then strengthen key stage 3 history and art curricula.

Christine Counsell is one of the most cited curriculum experts in UK schools. She has worked extensively with the English academy chain the Inspiration Trust, she is a lecturer in the faculty of education at the University of Cambridge and she is a frequent writer and speaker on curriculum

What does it mean to be 'educated'?

A problem for educational research and curriculum-building is that there is little agreement about what the "end product" of an educational programme should be, which is another way of saying that we do not have a clear image of what it means to be educated.

There have been three prominent ideas about the main purpose of education: that it is to bring up children to fit productively into the society around them; that it is to form children's minds with the best of past cultural attainments; or that it is to develop the individual potentials of each child as fully as possible.

In the first case, you would construct a curriculum that prioritises whatever will provide the knowledge and skills that are most relevant to make each child a good citizen and contribute to the society they will be a part of.

In the second case, you would construct a curriculum that prioritises those forms of knowledge and understanding that are best able to develop the minds of students so that they will become energetic inquirers, sceptical of whatever conventions and norms are current in the society around them.

In the third case, you would construct a curriculum shaped significantly by the students' own interests and needs that will develop their individual personalities and capacities as fully as possible.

These three ideas are largely mutually incompatible, and each also has significant incoherences buried within. In addition, the three general ideas about education cannot themselves be subjected to research about which is better: they are not empirical matters. If anything, they are more obviously matters of emotion – what people feel matters most about human life and what kind of society most satisfies them.

Education, inconveniently for those who like to think of it as accessible to the gleaming tools of scientific analysis, is largely a field of ideas and emotions. The kind of tools that currently dominate educational research can gain very little grip on these. And human learning within an educational programme is importantly tied into the workings of the human imagination, which similarly is not easily accessible to our currently fashionable research methods. Something about looking under the bright lamp for the object that was dropped in the shadowed grass in the distance comes to mind.

Dealing with ideas, emotions and imagination may seem, in light of the current issues that dominate educational discourse, remote from the curriculum planning activities in that school down the road, and may seem remote from the pragmatic issues of power over the curriculum. But I think that unless we get these matters front and centre, many of our struggles concerning the curriculum will likely be fruitless.

Kieran Egan is a professor in the faculty of education and co-director of the Imaginative Education Research Group at Simon Fraser University in British Columbia, Canada

ALAMY

How hip-hop keeps it real

In the United States, despite the plethora of curricula disseminated across schools, teachers are often met with the responsibility of teaching their unique group of students through a prescribed one-size-fits-all curriculum. But all students are not one and the same. So, is it possible to create a curriculum that meets the needs of all?

Although curricula for various content areas and modifications exist for struggling subgroups such as special-education students, the experiences of historically marginalised groups are rarely included or emphasised within the various curricula. This is because curricula are usually designed and tailored to the "average student", with little to no consideration of students who may be considered outliers.

In addition, students and their school community must demonstrate an ability to showcase their learning through assessments controlled by the state that may be biased.

As a result, teachers risk utilising a prescribed curriculum that does not represent or inspire all students. Teachers who work in unique contexts find it necessary to modify and/or design their own curricula to meet the individual needs of their students. How do they do that? The work of HipHopEd may show the way.

During the late 1970s, in the midst of an economic depression, hip-hop was conceived in the South Bronx, New York, by immigrants and black youth who felt left out and invisible from mainstream American culture.

Initially, hip-hop was a tool used to share the voices and realities of inner-city youth, and it has since developed into a nuanced and multifaceted culture. Young people from the South Bronx wanted to share their stories with the country, with the goal of raising awareness about the inequitable conditions that they experienced. At its core, hip-hop is about community empowerment and social justice.

Now, curriculum is a tool and, as with any tool, there are consequences – either positive or negative – with its implementation. I encourage the use of a hip-hop education framework to ensure that any curriculum is responsive to the culture and needs of students. In the spirit of hip-hop, before implementation, all curricula should be reviewed by a community of stakeholders (ie, teachers, students, school leaders and parents) to ensure that it meets the individual needs of students.

Questions that should be considered during this curriculum review are: who developed the curriculum? How is this curriculum aligned to standards? What is needed to ensure that this curriculum meets the individual needs of students and the school community?

Finally, continuing with the idea of curriculum as a tool, it is important that every curriculum encourages students to interrogate real-life questions that are relevant to their lives and daily experiences, as well as be critical of systems and structures that privilege some but not all.

This is a key component of Hip-Hop Pedagogy (Adjapong, 2017), as all curricula should encourage and provide opportunities for students to question and make sense of the world around them in all content areas. By considering a hip-hop-based approach to curriculum, we are working to ensure that our students are able to see the world through a lens of social justice – if they so choose.
Edmund Adjapong is assistant professor in the Department of Educational Studies and a faculty fellow in the Institute for Urban and Minority Education at Teachers' College, Columbia University, New York. He is also one of the leading theorists of the HipHopEd movement in the US

The productive learning model

There are three curriculum models – or at least three models that have political salience.

The first of these is the model enshrined in the UK national curriculum, though many of our schools are now exempt from it. This is a knowledge-based, assessment-driven and pedagogically impoverished account of curriculum.

The second is an offshoot of this, with knowledge now understood as abstract and theoretical, part of a system of thought, dynamic and reliable – and, as a result, testable and open to challenge – and outside the direct experience of the teacher and the learner. This model is deficient in that knowledge is conceived of in decontextualised and pedagogically inappropriate ways.

The third model is what I am calling a productive learning curriculum model, and such a model requires a number of sequential steps.

The first of these is that the aims and objectives of the educational programme need to be set out, and from these are derived the essential forms of knowledge, skills and dispositions that a society considers to be appropriate for human flourishing, as it is now and as its citizens would like it to be.

From these aims and objectives, a set of subject areas is derived and a set of relations between those subject areas are established. Different models of curriculum integration can be identified and these range from strongly framed curricula to weakly framed networked approaches to curriculum planning.

Bearing in mind the decisions made about curriculum subjects and their integration, learning objects – things like cognitions, skills and dispositions – are derived. Knowledge, then, is fundamental to the three types of learning that can be identified: cognitive (relating to ideas), skill-based (relating to processes) and dispositional – a "disposition" being a character type, a habituation, a state of preparation or readiness and a tendency to act in a specific way.

The next stage is to identify the most appropriate processes for the delivery of this curriculum: each learning object needs to be analysed as to how it can be best taught in the classroom.

It is here that mistakes are often made, with the same approach used regardless of what is being taught. For example, learners, at whatever level, are not taught in the best way about how they should behave towards other people if they are being told what they should do or through behavioural-conditioning processes.

This is about the identification of the most appropriate teaching and learning methods, and it involves choosing between a variety of approaches. The choices include: the pedagogic mode, which is the type of relationship between the teacher and the learners; the learning mode, the type of learning approach that underpins the work of the teacher; and the resources and technologies needed to allow that learning to take place.

You'll also need to think about feedback mechanisms, how learners are arranged in the classroom, the timings of activities during the lesson and how the learning can be transferred to other environments.

The important point is that the pedagogic approach is derived from the set of curriculum objectives and not from any summative assessment or evaluation standard or approach. These are the elements of a productive learning curriculum model.
David Scott is emeritus professor of education at UCL Institute of Education and has written about and researched curriculum in schools extensively

Letting pupils figure things out for themselves

In the curriculum work I am involved with (see criticalexplorers.org), students are put in direct touch with the subject matter – not words about the subject matter, but the subject matter itself: pendulums, new math puzzles, historical documents, germinating seeds, poems, essays, maps, clay, songs, the night sky – whatever.

Subject matter is in the world – it is not what is in books (as the philosopher David Hawkins has pointed out). The real world, with its web of relationships, provides many entry points to any subject matter – different minds get engaged in different ways. Minds generate questions, and the questions become the curriculum.

Let me show you how it works.

We count on the subject matter itself as the authority – not the teacher's words.

We do not tell the students what we make of the materials we have them look at and study. They proceed as mathematicians, physicists, writers, historians do. We have them listen to each other, talk about what they make of these materials, and explain what they see in the materials that make them think as they do.

Often we start by asking simply, "What do you notice?" when starting to study a poem or other piece of writing. We don't mean, "What does this make you think?", but just, "What is there for all to see?" – as, in the case of a poem, for example, "There are no periods until the very end," or, "There are four references to water – they're in these lines."

Everyone can see these things when they are pointed out. No discussion is needed.

As we continue, though, we ask students to point out a specific apparent contradiction, or a passage that doesn't make sense for them. And we ask others what they think about that apparent contradiction or that passage. We don't offer our opinion. The work is theirs. We listen for indications of what documents could come next, to take them further. Soon the discussion is deep.

We do this from primary school through to university.

Teacher Anne Collins, exasperated in her unsuccessful attempts to teach her class of 12-year-olds about mixed numbers, decided to do this: she wrote many mixed-number relationships all over the blackboard and asked the students what they noticed. They came up with everything that she had tried to tell them in her three previous lessons.

Heidi Stewart, a student teacher in a secondary school class, wrote this: "On Friday, I taught the lesson on commas that I had been working on.

"It went superbly well. I handed out sheets of commaless sentences from the students' own writing, sheets of correct comma usage, again from their own writing, and newspaper clippings.

"One student told me [by way of being helpful to a student teacher] that I was 'doing it wrong', that I was supposed to give them all the rules regarding commas and then they were supposed to fill out the worksheets demonstrating what they had learned.

"After pairs of students worked together on the passages that needed commas, consulting newspapers for their practices, the class as a whole worked on them with an overhead projector that allowed all of them to take part in a single conversation. I would move the commas to different places on the transparency, according to their thinking. Much of the class would get involved in most of the debates.

"By the end, the students developed a few basic rules of comma usage. I was impressed with how engaged they were when they had a chance to 'figure things out'. They really seemed to both enjoy and learn the material (and we're talking about commas here!)"

Sometimes, rather than starting with what they notice, we ask a relatively specific question: "Abby, please stand here [a front corner of the room], and Leon, stand here [the other side of the room, halfway back]. I have a little mirror. Where should I put it flat against this front wall so that when Leon looks into it, he sees Abby?"

They hear each other's predictions, and then, without yet checking out the predictions that are offered, each group of six or so students goes off into the corners or the hallways with a small mirror, and tries out their theories. All kinds of questions about mirrors come up, in addition to the original one. Every time study is initiated, a variety of discoveries are made, experiments are done, ideas are developed. Adults can work for many sessions from this start. One group took it into the deepest questions about the physics of light.

A short way of describing our approach is: we try to teach without telling what we know. And if we are not to be the source of the learning, we need strong curriculum. We require materials that stimulate questions – questions that come from the learners, and are real for them. A problem is not a problem unless it is a problem – and no thought will be given to if it is not.

Teachers need time to develop curricula like this. And, in addition, it would be great if anyone on a school district payroll who is not a teacher were expected to spend some of their time finding materials and puzzles that teachers could use to get learners diving into a subject matter.

Eleanor Duckworth is a research professor of education and professor of education, emerita, at Harvard University, Massachusetts. She has written extensively on curriculum and is president of Critical Explorers, an organisation providing free curriculum resources to pupils and schools in the US

The subject norms that cannot be ignored

Should a curriculum be populated by the facts contained in "core knowledge" or should it provide conditions for the meaning-making of students?

Turning to philosophy can shed light on the polarisation of these positions, each of which is insufficiently fine-grained and unable to take account of what makes human activity so different from the actions of other species (or machines).

The philosopher Robert Brandom provides an example in his work on inferentialism that brings out this distinction. For a machine such as a thermostat that responds to an increase in temperature by switching off, "action" is simply the outcome of a causal process.

For humans, however, the act of "switching off" cannot be understood simply in causal terms. Their response involves – and requires – reasons and awareness of what follows from being hot, and what the concept of hot means.

Without the relevant reasons, or "norms", the use that students make of concepts will not be governed by the standards of correctness of the subject that they are studying. The means of ensuring that norms are available to students may be varied, depending on the design of activities or choice and arrangement of curricular material. But the key point is that the norms cannot be ignored by the teacher or the student.

The natural response to helping students get to grips with the meaning of concepts is to break an area of content down into smaller parts and then attempt to recombine them at a later point. The danger with this approach to curriculum design is that the norms governing the appropriate application of concepts, in a particular knowledge domain, are no longer available. The word "force" in physics does not have the same meaning when used in the title of an opera like *The Force of Destiny*. How the term functions in each case is governed by norms.

If they are to be used to distinguish the meaning of concepts in different subject areas, the design of curricula cannot neglect the underlying norms that guide how concepts ought to be applied.

Jan Derry is a professor of the philosophy of education at UCL Institute of Education and a renowned theorist on curriculum