Redesigning Schooling - 2

# What kind of teaching for what kind of learning?

Guy Claxton and Bill Lucas
September 2013

**REDESIGNING
SCHOOLING**
THE CAMPAIGN FOR A SCHOOLS-LED
**VISION FOR EDUCATION**

## Authors

Guy Claxton has been co-director of the Centre for Real-World Learning and professor of the learning sciences at the University of Winchester since 2008. He has a double first from Cambridge and a DPhil from Oxford, and is a fellow of the British Psychological Society and the Royal Society of Arts. Guy is also an academician of the Academy of the Social Sciences.

Professor Bill Lucas is director of the Centre for Real-World Learning at the University of Winchester and a former school leader. Bill advises organisations across the world including ACER, GEMS Education, City & Guilds and the Health Foundation. As founding CEO of the Campaign for Learning, he helped to create Family Learning Week and set up the first research project exploring learning-to-learn approaches in schools and colleges in the UK.

Guy and Bill are co-founders of The Expansive Education Network. Both are prolific authors. Their latest book *Expansive Education: Teaching learners for the real world*, was released earlier this year. Bill is also the author of the forthcoming SSAT title *Redesigning Schooling – 6: Why parents and families really matter.*

## Editor

Peter Chambers

## SSAT's purpose

SSAT believes that teachers make students' lives. As the world gets more complex, that vital role becomes ever more demanding. As the hub of the largest, longest-standing network of education professionals in England, SSAT exists to help teachers perform their job even better, more confidently and more professionally than before.

### This publication

**Audience:** Education professionals at all stages and settings

**Aims:** Professors Guy Claxton and Bill Lucas address the fundamental questions: what are the desired outcomes of learning for each individual school? What kinds of teaching and learning will deliver those outcomes? And what kind of leadership will create those kinds of teaching and learning? In providing a structure and stimulus for answering these questions, the authors clearly explain and integrate much relevant work by international thinkers and leaders in education. Their analysis explains many of the ways in which our education system needs to change. It examines alternative approaches and gives guidance on how school leaders can integrate them into successful pedagogic leadership.

# Contents

////////////////////////////////////////////////////////////////////////////

# Introduction

Schools are in urgent need of redesigning. While some are giving their students a genuinely fitting start to life in the 21st century, many are not. We have not yet achieved the critical mass of thinking and practice that will change the system as a whole.

The people who will be doing the requisite thinking, and exploring the necessary and effective shifts in practice, are headteachers and their staffs. Politicians are not in a good position to do this, because their time horizon is based on the five-yearly election cycle. Genuine radical change is certainly too slow and too complicated to be reduced to sound bites and election winners. Even academic educationalists, sadly, won't do it either, because they do not have the requisite sense of urgency. Their bent is mostly to be cautious, balanced, analytical, argumentative and reactive, rather than committed, imaginative and practical. With a few exceptions, they will not take the lead.

SSAT's Redesigning Schooling initiative is therefore absolutely crucial, focusing as it does on inspiring, enthusing and encouraging school leaders, up and down the country, to seize the change agenda and be bold and thoughtful in exploring new directions. Headteachers know

schools well, they know children well, and they have both the understanding and the staying power to see through innovations that will genuinely take root and make the requisite difference.

This paper has been hugely informed by conversations we had with school leaders at events co-ordinated by SSAT in London and Manchester during 2013. We hope it will distil what we have heard into a rallying cry for many others.[1]

> The Redesigning Schooling initiative is crucial, focusing as it does on inspiring, enthusing and encouraging school leaders to seize the change agenda and be bold and thoughtful in exploring new directions.

Our discussion is structured around four fundamental questions, which sit at the heart of the redesigning schooling process. Every headteacher needs to consider:

1. What are, for your school, the desired outcomes of education (DOEs)?

2. What kinds of learning, in your school, with your students, will deliver your DOEs?

3. What kinds of teaching will lead to the kind of learning that is needed?

4. What kind of leadership is required to create the kinds of teaching and learning which are desired, and so ensure that students leave your school with your DOEs?

The first of these four interlinked questions is obviously of central importance. Every school needs to have a clear, precise specification of the knowledge, abilities, attitudes and values which it wants all its young people – especially those who are not going to be 'winners' at the examination game – to have acquired by the time they leave.

You cannot move on to the second until you have answered it carefully. Different kinds of learning processes are needed to deliver different kinds of outcome. The practical understanding of Ohm's Law needed by an electrician is different from the decontextualised, paper- or screen-based performances required by an A-level physics paper, for example. More fundamentally, the learning that develops a deep disposition to be curious, say, is different from the learning that results in a passive, compliant attitude towards knowledge.

Teaching is a way of engaging different kinds of learning processes in learners' minds, so you can't say what kind of teaching your teachers need to do, to deliver your DOEs, until you have responded to the second question.

Whether you create a studio environment, or sit students around a Harkness table, or set up role-play situations, isn't a matter of some nebulous idea of 'good teaching'. It depends on stimulating and engaging the kinds of learning that will deliver the outcomes you said you valued. This third question is complex because its answers are also dependent on a combination of research, experience and personality, as well as on a range of assumptions and beliefs about the teaching process.

Only when you have some clarity about the first three questions can you begin to prioritise the leadership strategies that will cultivate the necessary kinds of teaching. If you decide that you want students to play a greater role in designing and monitoring their own education (because you have decided you want to build qualities of independence and self-evaluation, say), you may have to organise CPD in the school so that teachers become more confident in sharing increasing amounts of control with their students. (The evidence that orchestrating the nature of professional learning is one of the most important roles for school leaders has been widely promulgated by Dylan Wiliam).[2]

# Chapter 1

## Teaching and learning to what end?

////////////////////////////////////////////////////////////////////////

Let's unpick these four questions a little more, starting with the first. Any design process starts from clarity about purpose and function. Whether it be a new computer game, a folding bicycle, or a 21st century school, you cannot know whether your design is any good unless you have a specific idea of what 'good' would look like. What drives design are the questions: what is it meant to do? For whom? All other decisions – What shall we make it of? How expensive is it going to be to make? What colours shall we paint it? And so on – are linked back to and motivated by that fundamental sense of purpose.

So 'redesigning education' has to begin with careful thinking about our old friends vision and values. Specifically, what is the fundamental purpose of compulsory education? What is it that we think all young people need to know, believe, value and be able to do, if they are going to flourish in the complicated and turbulent world of the 21st century? What is it that we can't be sure they would acquire if schools were not there to provide it? Once we have some clarity about the desired outcomes of education we can start to think about how best – most efficiently, economically, reliably and enjoyably, say – to produce them; but not until.

Current thinking about educational reform hardly ever does that. It starts with what we have and tinkers with it, rather than going back to the drawing board. That's why so much so-called reform just sails round in circles. You only have to compare the complaints about education, and the nature of the ensuing debate, from the 1850s with those of today to see that. It was in 1856 that educational reformer Joseph Payne bemoaned excessive testing in his memorable observation:

> 'Continually pulling up the plants to see the condition of the roots, the consequence of which is that all natural growth is stopped... Making quantity, not quality [of learning] the test of your results, you shall fail in securing either quantity or quality.'[3]

Today's political debates are depressingly similar. They are obsessed with literacy and numeracy, with examination results and university entrance, and (a new obsession this) with our nation's position in international league tables of educational performance, as measured by standardised tests. Nothing wrong with those as far as they go – but is that really the gamut of desirable outcomes of education, in and for the 21st century?

### Notable examples of national educational redesign

Not for many countries round the world, it isn't. Look at the redesigning that is going on in Singapore, New Zealand, Australia and Ireland, for example. You will find that the DOEs are being couched not in terms of examination results and places at posh universities (with small corners at the bottom of the screen for impressive performances by the 1st XV and the school orchestra). Instead they are couched in terms of the *personal qualities* that the school system explicitly, deliberately, aims to inculcate.

Singapore's DOEs, for example, include the production of every young Singaporean as

- a **confident person** who is adaptable and resilient, knows himself, thinks independently and critically, and communicates effectively;
- a **self-directed learner** who takes responsibility for his own learning, who questions, reflects and perseveres in the pursuit of learning;
- an **active contributor** who is able to work effectively in teams, exercises initiative, takes calculated risks, is innovative and strives for excellence.[4]

These countries – and dozens like them – are also explicitly acknowledging that society has changed, and that the skills and interests of young people have also changed. This means that the aims and designs of schooling have to change too. The new national curriculum in Australia, for instance, states:

'Education must anticipate the conditions in which young Australians will need to function when they complete their schooling… [and] needs to acknowledge the changing ways in which young people will learn.'[5]

In all these countries, people are trying to do the hard work of thinking through the implications of these shifts in influences and aspirations for the design of schooling. In this country, we hear not a squeak on such matters from the Secretary of State for Education, just a repetition of tired and groundless assertion about 'rigour', 'standards' and ever 'higher expectations'.[6] In England, more than elsewhere, it is people who work in schools, and run them, who are not only best placed to do this heavy thinking, but the only people who seem inclined to do it. If we are going to make progress with redesigning schooling, we have to cut through the lazy rhetoric. There is no such thing as 'best practice'

in teaching, or a 'world-class' school. Those aspirational epithets are meaningless until you say what the desired outcomes are. Best practice – for what? World class – at what? We must keep remembering those DOEs, and reminding ourselves that, for most of us, they include attitudes and values as well as knowledge and skills. Otherwise, we risk continually falling back into the familiar, unwitting preoccupation with test scores, and with training only the limited abilities to discuss and manipulate knowledge on which those scores depend. And we will then be back chasing our tails, trying to squeeze marginal improvements out of a system that was designed for the 19th rather than the 21st century.

> There is no such thing as 'best practice' in teaching, or a 'world-class' school… until you say what the desired outcomes are. Best practice – for what? World class – at what?

## Education as a moral project

Schools are moral enterprises. Their cultures and practices are saturated with value judgements about what is worth learning and knowing (e.g. cerebral vs manual), how best to display your knowledge (e.g. through the written word vs through acting), who has a right to question or adapt knowledge (e.g. students vs not students), the valid hallmarks of intelligence (e.g. knowledge retrieval vs practical expertise), and so on.[7] In redesigning schooling, we cannot afford to be squeamish about these moral bedrocks of school. We cannot opt out, and magic them away with weasely words like 'standards', 'rigour' and 'high expectations'. Standards – of what? Rigorous – at what? Expectations – about what? Redesigning schooling is not principally a technical matter; it is first and foremost a moral one. Our only choice is to face it or fudge it – and pioneering schools and nations are the ones with the integrity and courage to face it.

As noted, there is a remarkable degree of overlap in the qualities of mind that these countries have singled out as the ones of greatest value for citizens of the 21st century – and therefore the ones they have to figure out how best to cultivate. Some of them are shown in figure 1 below, with their implied antitheses in brackets.

**Figure 1:** Commonly desired outcomes of education

**Prosocial**

- Kind (not callous)
- Generous (not greedy)
- Forgiving (not vindictive)
- Tolerant (not bigoted)
- Trustworthy (not deceitful)
- Morally brave (not apathetic)
- Convivial (not egotistical)
- Ecological (not rapacious)

**Epistemic**

- Inquisitive (not passive)
- Resilient (not easily defeated)
- Imaginative (not literal)
- Craftsmanlike (not slapdash)
- Sceptical (not credulous)
- Collaborative (not selfish)
- Thoughtful (not impulsive)
- Practical (not only 'academic')

The DOEs are broadly of two kinds, which we have called 'prosocial' and 'epistemic'. The prosocial ones are to do with cultivating the attitudes of a good friend, a good neighbour or a good citizen. The epistemic ones are to do with the qualities of mind of the powerful learner: a person who is able to meet difficulty and uncertainty with confidence, capability and enthusiasm. The major challenge for the 21st century school is how to design itself so that it functions, day-in, day-out, as an effective incubator of its chosen virtues. It is all too easy to pack the prospectus or the home page of the school website with fine words, but they famously butter no parsnips. Merely knowing what makes a good friend or a brave learner is no guarantee at all that the knowledge will automatically seep into the daily habits of the school members – students, teachers and other staff. Understanding what it

takes to design a school so that the *espoused* values do gradually become *enacted* values: that takes thought, solidarity and determination.

### Expansive education across the world

Of course there are a great many variants of figure 1 around, some arising from research in the social and educational sciences. For example, you can find differing versions in Art Costa's 'habits of mind',[8] David Perkins and Ron Ritchhart's 'thinking dispositions',[9] the OECD's 'key competencies',[10] and Guy Claxton and colleagues' 'learning habits'.[11] Each of these initiatives has shown how small shifts in classroom procedures can contribute to both raising attainment *and* developing successful learners. These are the kinds of evidence-based approaches that school leaders choose, because they wish their students to get good grades *as well as* developing desired prosocial and epistemic qualities. The expression 'expansive education' collectively describes these and other cognate enterprises.[12] Evidence from across the world shows how schools are implementing such ideas.[13] Examples in our book *Expansive education: teaching learners for the real world* range from primary schools in the Isle of Man, southern Poland, rural Finland and inner-city Auckland, through Spanish-English bilingual schools in Argentina, to apparently traditional independent schools such as Eton College and Gordonstoun in the UK, Newington and Toorak colleges in Australia, as well as state-run further education colleges in several countries.

In redesigning schooling the important thing seems to be, not deciding which list of DOEs to take off the shelf, but turning these templates into a version that has traction and gets buy-in at an individual school. Whatever the list, it needs to be accessible and appealing to those people who will be working with it: teachers, students, parents and the wider world.

**Cultures of and for learning**

A school signals its values through different aspects of its culture. There are the visible, public espousals of these values through brochures, websites, speeches, newsletters and other publications. But values are also carried through the kinds of reports that are written about students, and through the honours boards and other ostensible definitions of 'success' such as trophies, photos of noteworthy achievements and displays of students' work.

Most importantly, values are conveyed moment-by-moment by teachers in classrooms. They come out through teachers' running commentary on students' struggles, achievements and behaviour; through the kinds of activities they create; through the way they lay out the furniture in their room, or configure group work; and through the kind of language they use and the example they set.[14]

> Values are conveyed moment-by-moment by teachers in classrooms – through their running commentary; the kinds of activities they create; the way they lay out the furniture or configure group work; the kind of language they use and the example they set.

For example: do teachers welcome correction from students when they make a mistake, or do they get defensive and indignant? Do they show interest and appreciation when a student asks a difficult question to which the teacher does not have a ready answer, or do they ignore or disparage such 'audacity'? Do they speak in a way that invites critical engagement by students, or does a declamatory tone convey the message 'I am telling you the truth, and your only job is to understand and remember correctly'?

Many people are now arguing that it is the fine detail of teaching that encourages the expression and development of certain habits of mind, and discourages others. The redesigning of schooling has to pay critical attention to pedagogy. Answers to the first of our four questions lead inexorably into discussions on the nature of teaching and learning. This is the ground from which a genuinely 21st century education will ultimately emerge.

### Restrictive practices in England today

Since the coalition government took office in the UK in 2010, there have been visible changes to the kinds of schools that make up our system. Some of these were set in train by the previous government – university technical colleges (UTC) and studio schools, for example; others are more recent coinages such as primary academies and free schools. The political rhetoric around these changes signifies greater autonomy for schools and, ostensibly, less centralised regulation.

The perceived reality expressed to us at the SSAT events and in our many visits to schools is different, however. School leaders frequently express degrees of fearfulness about the negative impact that Ofsted judgements, for example, can have on their genuine attempts to take risks in the interest of improving learning. For example the EBacc, as originally conceived by Secretary of State for Education Michael Gove in 2012, has been withdrawn. But many school leaders tell us that recent changes to the ways GCSE scores will be used in league tables is likely to have the same effect – restricting student choice to favoured academic pathways. Government protestations that schools retain considerable discretion, and that 'brave heads' will continue to make full use of them, seem disingenuous in the face of these high-stakes performance indicators. The increased emphasis on end of course 'paper and pencil' examinations seems perverse in the context of the many current attempts to match the method of testing more closely to the real world utility of what has been learned at school.

Apart from the laudable endeavours of some UTCs, there has been little attempt to think seriously about the 50% or so of secondary students for whom the diploma and many vocational qualifications had been and are currently designed. The so-called 'TechBaccs' under current discussion could merely be a wrapper of existing qualifications, not an indication of any more thoughtful redesign. However, both City & Guilds with its TechBac® and ASDAN with its Modern Baccalaureate are developing interesting attempts to create a genuinely alternative learning and assessment route.

At primary level there have been some sensible changes of heart with regard to the content of English, geography, computing, and design and technology. But the new tests at the end of key stage 2 will rank a cohort of pupils in 10 bands, each containing 10% of the cohort's pupils. Parents will receive a letter from the government telling them exactly where their children are placed in this national ranking of maths learners, for example. It is not difficult to imagine how demotivating that may be for the students who will be at the bottom end of this new league table, just as they progress to their secondary school.
At the heart of the government's thinking there seem to be three dubious tenets:

1. Changing organisational structures will, of itself, lead to changed teacher behaviours.

2. Tinkering with assessment procedures will produce more valid gradings and better 21st century learners.

3. Introducing more stringent high-stakes performance indicators for schools will not (or 'should not') lead schools to narrow their curricula and 'teach to the test'.

If the vision laid out in the first part of this paper is to be realised, it will be despite rather than because of such government structures.

**Some principles of school redesign**

At the SSAT events at which we and school colleagues tried to think our way through these issues, we agreed a number of principles to guide us in our joint work. These principles were designed to combine moral judgements about the purposes of education with evidence from research. The following eight suggested principles represent the results of these discussions with school leaders.

## Eight principles of school redesign

**1.** The role of schools, leaders, teachers and parents is, above all, to equip learners with the dispositions they need to thrive throughout their lives in an uncertain world. One of these specific capabilities, vital for only a short period of their lives, is the ability to achieve success in examination systems.

**2.** Learning is learnable. It improves when learners have a clear set of metacognitive strategies which they are able to use confidently in a range of contexts, as well as a language to describe their learning experiences.

**3.** What learners believe about themselves matters a good deal, and a 'growth mindset' is both a powerful motivator and a predictor of success.

**4.** When teachers actively continue their own learning and model this in their classrooms, learners achieve more.

**5.** Learning works well when it builds on pupils' prior experiences and is (in some sense) 'authentic'.

**6.** Learners do best when they have clear and stretching goals and learn in an environment rich with formative feedback, with many opportunities for reflection; the best learning is driven by highly engaging questions.

**7.** Learning requires opportunities to develop emotionally and intellectually, socially and individually.

**8.** All learners need a diet of both practical and academic experiences, within and beyond the formal curriculum.

These eight principles take us into our second question.

Chapter 2

# What kinds of learning do you need in your school to deliver your desired outcomes of education?

////////////////////////////////////////////////////////////////////////////////////////////

Our answer to this question is two-fold.

First, school leaders might want to strengthen the kinds of learning which lead to young people who possess certain agreed DOEs. For example, they might develop some of the following characteristics:

kind, generous, forgiving, tolerant, trustworthy, morally brave, convivial, ecological, inquisitive, resilient, imaginative, craftsmanlike, sceptical, collaborative, thoughtful and practical.

These are the kinds of valued dispositions (combining the prosocial and epistemic from figure 1) which emerge from expansive education.

Secondly, school leaders might decide they want learning which is grounded in some version of the eight principles.

Let's explore a couple of these candidate valued dispositions, and some of the eight principles, in a little more detail.

**Learning that cultivates prosocial and epistemic dispositions**

Exactly how schools grow their learners so that they emerge with the desired DOEs is not a precise science. But it is certainly possible to make some general observations. In terms of the prosocial outcomes, while the teaching which takes place in classrooms is very much part of the story, the main focus will be on the kind of moral environment the school creates. Key to this moral milieu will be the behaviour of the headteacher and his or her senior staff, and likewise the way in which form tutors or class teachers go about their pastoral roles.

You might get some hints as to the nature of the prosocial milieu by the way kindness, generosity and forgiveness are manifest in the school, as all three are kinds of giving. What structures are there to ensure that students look after each other? Does the school have a garden or animals that students care for? Does the school genuinely reach out to show kindness within its community, perhaps to a local care home, for example? Are acts of kindness or generosity noticed and celebrated? Perhaps there are awards for children who, on a weekly basis, demonstrate these virtues.

A similar series of observations would relate to the remaining citizenship outcomes. There will also be generically useful approaches such as residential education, mentoring schemes, volunteering, adopting charities, well-run pupil councils, summer schools, parental engagement, collaboration with local business and so forth. All of these can contribute to the moral environment in which prosocial behaviours are likely to flourish.

A powerful contributor to the development of prosocial values is not so much what is *on* the curriculum but what is *implied* by the way a school is organised. Most teachers are familiar with the concept of the 'hidden curriculum'[15] – the messages and meanings that students pick up from

any school in addition to the formal curriculum of classroom life and the informal curriculum of play or social time. So, for example, if lunchtime supervisors speak to pupils in a kind but firm way as opposed to shouting at them in abrasive and judgemental mode, the messages pupils pick up will be very different. This is the hidden curriculum at work.

> The hidden curriculum…(includes) lunchtime supervisors speaking to pupils in a kind but firm way, as opposed to shouting at them in abrasive and judgemental mode.

The epistemic outcomes of education are important for two reasons.

Firstly the less familiar concepts need careful thought if they are to be cultivated effectively, for we are dealing with a complex process of 'epistemic apprenticeship',[16] the development of a learner's identity as they engage with the core activities of learning to think and learning to learn. At the end of 15 years of education students could emerge either as inquisitive and resilient, or passive and easily defeated, for example. The eight epistemic outcomes in figure 1 tend to be seen, by a range of authors, as the core habits of mind of a great learner. Epistemic apprenticeship is a core concept in learning how to learn, just as the hidden curriculum holds powerful sway on the way young people come to see the world as citizens.

Secondly, the epistemic element of schooling often gets overlooked in any system redesign because it is less immediately tangible than, say, changing the curriculum structure or the assessment regime, things much tinkered with by government. This is, perhaps, why the CBI recently chose to make a well-considered contribution to this debate, in its report *First Steps: a new approach to our schools*.[17] One of its main recommendations was that the UK should develop:

> '… a clear, widely-owned and stable statement of the outcome that all schools are asked to deliver. *This should go beyond the merely academic, into the behaviours and attitudes schools should foster in everything they do* [our italics]. It should be the basis on which we judge all new policy ideas, schools and the structures we set up to monitor them.'

Taking the two desired outcomes of inquisitiveness and resilience as exemplars, here are a few examples of the kinds of learning which a teacher might choose if he or she were using one of the expansive education approaches, Building Learning Power.

To build inquisitiveness, teachers – as many do – could introduce topics by asking students to brainstorm their existing knowledge and then to identify the questions arising, to which they would like answers. These questions can then be incorporated into the unfolding curriculum. (Teachers can usually anticipate, to some extent, the kinds of questions their students will come up with!). Or teachers could train themselves to respond more warmly to students' questions as they arise in lessons, perhaps helping them to learn how to formulate their own questions more clearly or precisely.

Many techniques can help build resilience.[18] Students can be encouraged to monitor their own 'self-talk' as they engage with challenging tasks, learning to replace a defeatist or negative internal commentary with one that is more optimistic and encouraging. Or they can be explicitly introduced to the concepts of self-efficacy and growth mindset, and shown how to apply them to their own learning.

Now let's revisit our eight principles. What kind of learning do they invite? Here they are again in headline form followed in each case by an example of a specific teaching suggestion:

1. **A focus on cultivating dispositions as well as developing knowledge**

   Help learners to be confident about the disposition they are developing (e.g. getting better at dealing with setbacks) as well as what they are learning (e.g. a complex aspect of human geography).

2. **A set of learning to learn strategies**

   Equip learners with a menu of learning strategies which they can deploy according to the context in which they find themselves (e.g. encourage them to make inferences from the information they are given, or to solve a simplified version of the problem first).

3. **Growth mindsets for all**

   Learners see the analysis of and reflection on their mistakes as a sign of strength not weakness.

4. **Learners as teachers**

   All pupils have a regular chance to teach another pupil something (e.g. having older students work as coaches or mentors to younger ones).

5. **Authentic and connected to prior experiences**

   Learning sessions start by finding out what learners already know and inviting them to share this.

6. **Stretching goals, feedback-rich environments; all powered by engaging questions**

   Each half-term schools invite their pupils to explore a big question, which is capable of being investigated at many levels and to which there are no easy answers.

7. **Emotional and intellectual, social and individual**

   Schools consciously create opportunities for all four of these important aspects of learning.

8. **Practical and academic experiences, within and beyond the formal curriculum**

   Learning of all kinds is genuinely and equitably celebrated within and beyond school.

Learning methods that fit well with the development of DOEs and with our eight principles include but are by no means limited to the following approaches to teaching and learning:

- Problem-based learning
- Enquiry-based learning
- Extended projects
- Peer teaching
- Students critiquing each other's work
- Assessment for learning.[19]

Now let's turn to our third question.

Chapter 3

# What kinds of teaching will create the kind of learning that you want in your school?

///////////////////////////////////////////////////////////////////////////////
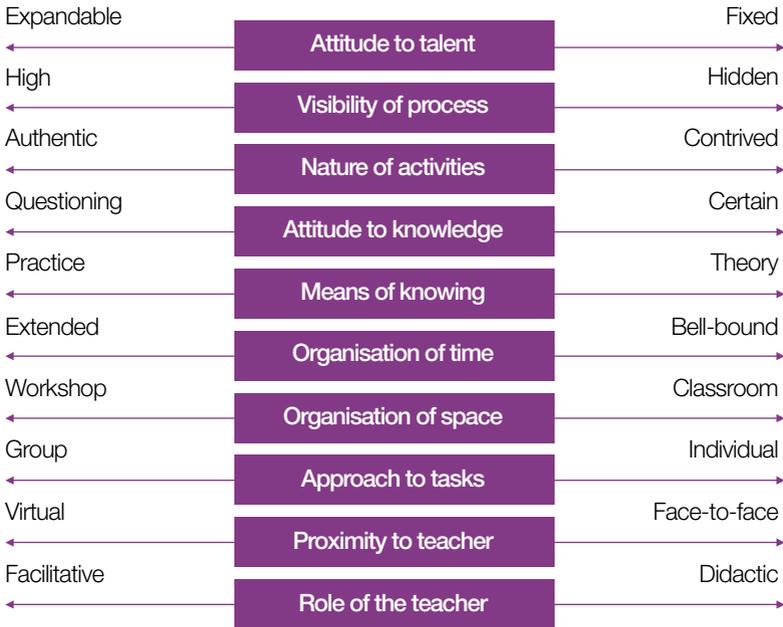
School redesign is not a morally neutral process. We must have clarity
about desired outcomes of education. The school leaders in our
discussions agreed that it is the role of schools to develop learners who
are knowledgeable and passionate about a broad range of content
areas. They have acquired the kind of prosocial dispositions that will
enable them to flourish in an ever-changing world (to be an effective
global citizen). And they are powerful learners (epistemic expertise).

The central locus for these developments is, of course, the classroom.
And the main means by which they are achieved is through the
teacher's approach to pedagogy. We see pedagogy as the 'art, science
and craft of teaching and learning' manifested in the choices teachers
make. These choices can exist at the macro level (overall course or
curriculum design), the meso level (lesson plans), and the micro level, in
all the in-the-moment decisions that teachers take.

To help teachers take the kinds of decisions which will lead to the
kinds of learning that will itself lead to the kinds of DOEs described,
we offered discussants who attended the SSAT-led workshops a

decision-making tool (figure 2). It is a way of framing the kinds of
questions teachers may wish to ask to help them be sure that
their teaching cultivates these DOEs.

**Figure 2:** 10 dimensions of expansive pedagogy

| Expandable | Attitude to talent | Fixed |
|---|---|---|
| High | Visibility of process | Hidden |
| Authentic | Nature of activities | Contrived |
| Questioning | Attitude to knowledge | Certain |
| Practice | Means of knowing | Theory |
| Extended | Organisation of time | Bell-bound |
| Workshop | Organisation of space | Classroom |
| Group | Approach to tasks | Individual |
| Virtual | Proximity to teacher | Face-to-face |
| Facilitative | Role of the teacher | Didactic |

It is important to point out at this stage that these choices are not
binary, either/or decisions. Rather, each is a continuum along which the
informed teacher can adjust her practice as she ponders how best to
create optimal conditions for learning. So, for example, when teachers
are considering their role, they will want to be thinking about which
goals or situations call for a more didactic approach and which a more
facilitative one.

Neither end of the spectrum is always better than the other. They are
a way of framing a set of judgements that require teachers to consider
many different variables, such as:

- the nature of the subject matter (does science teaching call for
  different methods than, for example, learning how to make
  furniture?)
- the characteristics of the target learners (age, prior experience)
- context (physical environment, assessment regime), *and,
  importantly*
- the DOEs that are in the teacher's mind (which may well relate to a
  wider discussion within her school).

> Teachers will want to be thinking about which goals or situations
> call for a more didactic approach and which a more facilitative one.

While neither end of each dimension is 'right' or 'wrong' there is an
ongoing shift in thinking about pedagogic practices across the world
which is moving practices broadly to the left of figure 2 for those who
are seeking to develop the kinds of DOEs we have been talking about.

No teacher can avoid these choices. From the moment they walk
into a room they are faced with a wide range of options. Being explicit
about the kinds of choices you are making is important in the context
of rethinking – and readjusting – pedagogical habits and so engineering
bottom-up redesign of schooling.

We will briefly describe the choices offered in our 10 dimensions, and
suggest at least one relevant teaching method for each. We will also
offer generalisations about the area with regard to the development of
teaching that leads to dispositional DOEs.[20]

### Attitude to talent – expandable or fixed

Whether you leave school with attitudes of resilience and craftsmanship depends to a large degree on how hard you have pushed yourself, how you have dealt with setbacks and how good you are at staying positive. Whether you possess these dispositions or not is hugely influenced by the kind of learning mindset you have. More than anyone else Carol Dweck's research[21], already mentioned, has shown just how important it is to ensure that pupils develop mindsets which are founded on the self-belief that they can get better, smarter and more powerful: in other words, possessing what Dweck calls a 'growth mindset'.
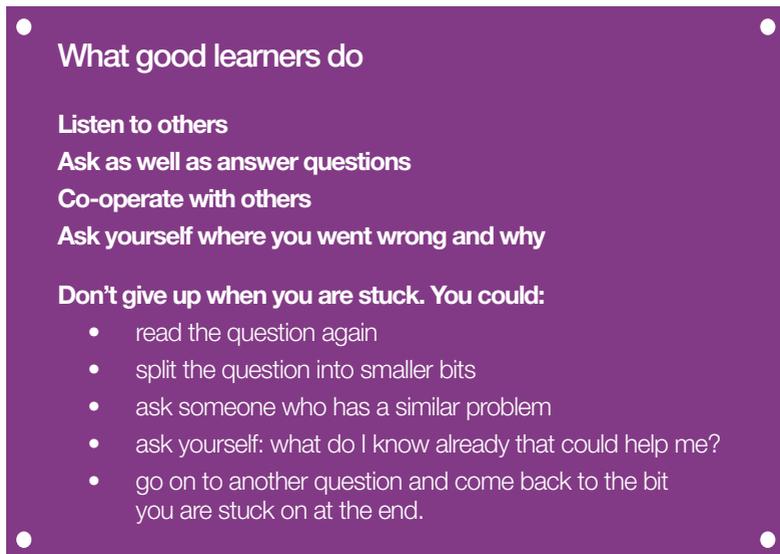
Those with a growth mindset are not easily defeated. They see the making of mistakes as an indicator of effective learning. They enjoy stretching themselves and are always looking to see how they could be 'even better if …', whereas those with fixed mindsets are more risk-averse and, wrongly thinking that any talent they possess is innate, see little value in practising and putting in effort. They ascribe their success or failure in life to their genes. Indeed, they can be effort-averse, believing that if you have ability you should not need to exert effort, so that 'having to try' equates to 'being low ability'.

There are a number of pedagogic choices that follow from this body of research. First, teachers can talk to students in ways that transmit a belief in the fluidity of the learner's potential. Rather than reporting that student x 'is not able to' do something, teachers will prefer to say that student x has not 'yet' mastered it, unambiguously stressing the likelihood that they are capable of doing so. Even when something has been mastered, the assumption will always be that there is room for further improvement.

Such stretching views of what is possible bring with them challenges. So, secondly, the teacher seeks to provide support or scaffolding,

in order that learners can set ambitious goals but receive appropriate
support. Strategies abound for dealing with setbacks and building
resilience. An example from Building Learning Power is the 'stuck'
poster, which students develop as an aide-mémoire for themselves
to prompt a variety of courses of action they can use when they get
stuck (figure 3).Thirdly, teachers who see the power of growth mindsets
may choose to focus on helping learners to help themselves by using
a specific kind of technique called 'deliberate practice'.[22] Deliberate
practice is good practising; practice that really helps you get better at
something, whether you are learning a musical instrument, grasping
quadratic equations or using idiomatic French.

**Figure 3:**  What good learners do: the 'stuck' poster from
Building Learning Power

## What good learners do

**Listen to others**
**Ask as well as answer questions**
**Co-operate with others**
**Ask yourself where you went wrong and why**

**Don't give up when you are stuck. You could:**
- read the question again
- split the question into smaller bits
- ask someone who has a similar problem
- ask yourself: what do I know already that could help me?
- go on to another question and come back to the bit
  you are stuck on at the end.

**Visibility of processes: high or hidden**

Architects used automatically to hide their buildings' central heating ducts, waste pipes and lighting cables - until Renzo Piano and Richard Rogers, the architects of the Pompidou Centre in Paris, made a feature of them. Theatre directors used to pride themselves on hiding all aspects of stagecraft from the audience – until dramatists like Michael Frayn (in *Noises Off*) started writing the stagecraft into their plays. And teachers used to think that they should keep many of the processes and methods of learning hidden from students, and focus only on the content and subject at hand – until recently, that is.

It has been known for 50 years that understanding more about the processes of our learning, sometimes called metacognition or meta-learning, was potentially a useful thing for learners to do. And in the last decade, study after study has made explicit connections between understanding the processes of learning and the development of successful learning dispositions (as well as higher achievement).[23]

The title of John Hattie's well-regarded book *Visible Learning* underlines the importance of this dimension:

> 'It is critical that teaching and learning are visible. There is no deep secret called 'teaching and learning'; teaching and learning are visible in the classrooms of successful teachers and students… What is most important is that the teaching is visible to the student and that the learning is visible to the teacher.'[24]

The more that learners see what is going on as they are learning it, the better they will be able to understand and apply it in different contexts. Teaching that invites high visibility of processes and focuses on the 'how' of learning takes every opportunity to talk about the nature of learning itself - not as an afterthought but as an integral part of teaching subject knowledge. These teachers try to make the 'pipes' of the learning 'architecture' visible at every stage. Coaching, reflection and

the kinds of feedback that assessment for learning promotes are
good practical examples of methods that work to make thinking
and learning visible.

> High visibility of processes, focusing on the 'how' of learning
> and the nature of learning, is an integral part of teaching
> subject knowledge.

### Nature of activities: authentic or contrived

American researcher Lauren Resnick initiated a debate about the
differences between school learning and learning in the real world in
her 1987 Presidential Address to the American Educational Research
Association.[25] She pointed out the many ways in which schools offer
a version of learning which bears little resemblance to what learners
will need when they leave school. Yet schools could be a lot closer to
life outside if they chose to be so.

More recently, Harvard's David Perkins describes some of the tensions
between learning in the real world and in school really helpfully in his
book *Making Learning Whole*.[26] He makes a compelling case as to
why and how schools can teach authentically what he terms 'the whole
game of learning'. He puts his finger beautifully on two aberrations
common in schools, which he calls 'elementitis' and 'aboutitis'. Both
conspire to keep young people away from the rich experience of real
world learning.

**Elementitis** is the habit of breaking complex subjects up into
meaningless chunks (learning the game of Scrabble, say, by
listing from a dictionary five-letter words beginning with 't').

27

> **Aboutitis** is the tendency to teach about interesting ideas rather than seeing whether they work in practice. A good example of this was the way some teachers taught students about Howard Gardner's multiple intelligences by having students colour in an imaginary profile of their strengths. Well-intentioned as this doubtless was, it did not help students to understand the deep and interesting ideas behind the theory.

Teachers who seek to be more authentic are more likely to cultivate inquisitive and practical learners.

### Attitude to knowledge: questioning or certain

In much school learning, questions are asked and right answers are given. But as we get older we come to realise that the really interesting issues in life often have many possible interpretations and solutions. Take the underlying question in this pamphlet, about the purpose of school. There are many possible standpoints. To take an example: compelling learning, as number 6 of our 8 principles on page 14 suggests, is likely to be driven by compelling questions. Yet even when the subject is complex and interesting, schoolteachers may still have a habit of speaking with a certainty that brooks no challenge or leaves no room for subtlety.

Ellen Langer's research is pivotal here. She has shown that small shifts in a teacher's language can induce a marked change in the kinds of outcomes that learners achieve. Specifically, if a teacher says definitively that something is the case, students take it literally and try to remember it. But if a teacher says, of the same thing, that it could be the case, they become more engaged, more thoughtful, more imaginative and more critical. 'Could be' language invites learners to become more active, inquisitive members of the knowledge-checking, knowledge-developing community, rather than to see themselves as merely doing their best to understand and remember something that is already cut and dried.

> 'Could be' language invites learners to become more active,
> inquisitive members of the knowledge-checking, knowledge-
> developing community.

Such tentative language suggests a more facilitative teaching approach,
one that invites multiple opinions and creates compelling environments
in which learners can explore complex issues. It assumes that there
will be many answers to most questions. Of course there are many
occasions when certainty is smart – when life is endangered, when
dealing with some aspects of morality, when multiplying in base 10 and
expecting that 2 x 2 will equal 4, and so on. But on many occasions, a
more tentative language that encourages talking things out, enquiring,
listening, drafting and giving and receiving feedback are likely to
be helpful.

### Means of knowing: practice or theory

When do we need the theory before we can learn and when is it better
to start messily, trying things out, and piece together the rules? When
does theory need to be offered in practical situations, on a need-
to-know basis, and when is it necessary to develop a good overall
conceptual grasp before one dives in to problem-solving? We know
that having a theoretical understanding is an essential part of the
development of more complex learning outcomes such as the ability
to deal with non-routine situations or to transfer learning from one
context to another. In both these cases, learners need to be able to see
patterns, models and connections in order to be able to access and
bring to bear something learned in the past.

The work of David Perkins and Gavriel Salomon shows that such transfer is assisted by:

- extensive practice in different contexts
- specifically encouraging learners to consider, at the point when they first learn something, how they might use it in other contexts
- making as many connections as possible to the learner's existing knowledge
- providing clear models, explanations and mental models at the point of first learning a new skill.[27]

If we want learners to be resilient and imaginative, able to flourish in many different situations, they will need to have experience of seeing connections and coming up with models themselves as well as being offered practical heuristic techniques along the way. Knowledge and experience can be invaluable in building the capacity to create novel hypotheses and explanations for oneself.

**Organisation of time: extended or bell-bound**

Almost every teacher will admit to the frustration of the bell going just when things are getting interesting. It takes time to become immersed in learning and to go deeper. Something happens to the quality of our engagement when we are engrossed in learning for an extended period of time. Mihaly Csikszentmihalyi has studied this phenomenon extensively and coined the word 'flow' to describe the state of mind that learners can achieve if they are deeply absorbed in their learning, an experience in which they find deep fulfilment and in which they become unaware of time.[28] To achieve the state of flow, the task needs to be sufficiently demanding and engaging; the learner needs to have enough skill to be able to tackle the task without undue anxiety or stress; and there needs to be sufficient time available.

> 'Flow' occurs when learners are deeply absorbed in their learning,
> and find deep fulfilment… The task needs to be demanding and
> engaging; the learner needs to have enough time and skill to
> tackle the task without undue anxiety or stress.

There is clear evidence from Csikszentmihalyi's research that the quality
of creativity increases when we are in a state of flow and that the
experience of flow is itself inherently beneficial to the learner, who finds
such experiences enjoyable and rewarding. Experiences like this do
not come easily or when an individual is consciously relaxing. Rather,
they involve, to use Csikszentmihalyi's own words, 'painful, risky, difficult
activities that stretched the person's capacity and involved an element
of novelty and discovery.'[29]

In Lois Hetland's work on studio learning at Harvard's Project Zero,[30]
projects often extended over a whole day and were carried out over
a period of weeks. She links such extended periods of learning
with increased engagement and persistence in learners. Extended
projects clearly help, as do ways of engaging with learners outside
the school and the school day, where activities can spill out beyond
the end of classes and beyond the school gates into their homes and
into he community. Teaching that expands beyond the bell is likely to
encourage the development of inquisitive, imaginative, collaborative
and craftsmanlike learners.

**Organisation of space: workshop or classroom**

When work in progress is deliberately and safely left out, as in a
workshop, students are constantly invited to see all learning as an
iterative process. When displays remind us of the 'how to' of learning
rather than just the end product, we understand more about the ways
in which we can do better, as we do when we see a poem's workings

revealed or handle prototypes of an invention. Teachers can use space to underscore their learning intentions: craftsmanlike behaviours require constant tinkering, drafting, redesigning of the kinds that workshop milieus encourage. We should, as Roy Pea suggests, 'reorient the educational emphasis from individual, tool-free cognition to facilitating individuals' responsive and novel uses of resources for creative and intelligent activity alone and in collaboration.'[31]

Learning methods that are obviously workshop-based include watching, imitating, practising, drafting, sketching, conversation, reflecting – the kinds of things that happen naturally when a group of makers or artists are working in the same space and are curious to see how each other's endeavours are progressing. Learning in studios and workshops tends to be unselfish and collaborative, with the assumption being that everyone can learn from everyone else.

### Approach to tasks: group or individual

In the real world, teamwork is an essential way of working and learning. The ability to work collaboratively in groups to solve problems is one of the attributes cited by employers across the world as highly desirable. And this is not a new 'desired outcome'. A century ago, John Dewey argued strongly for a more cooperative approach to learning, variously using phrases like 'cooperative intelligence' and 'collective intelligence'. He argued that for knowledge to be in any real sense useful it has to have expression in relationships and social activity. No man or woman is an island.[32] David Boud has helpfully described this, too:

> Students learn a great deal by explaining their ideas to others and by participating in activities in which they can learn from their peers.[33]

Jean Lave and Etienne Wenger[34] have shown how groups work and learn together. As they interact and solve problems together, so their learning habits and attitudes rub off on each other. New members

watch carefully how the more established members talk, respond and
deal with challenges, like children do when they want to join someone's
'gang'. This stage of what they term 'legitimate peripheral participation'
is a key part of the process of developing thoughtful, collaborative,
practically minded learners.

In terms of redesigning schooling, teachers may want to consider just
how group working can really be valued when much of the assessment
system derides it. Collaborative work is hugely valued in life but at
school – certainly come exam time – there is a feeling that it is somehow
not fair, even a form of cheating.

**Proximity to teacher: virtual or face-to-face**

No school redesign initiative would be complete without a consideration
of the role of technology in teaching and learning, especially the
ways it frees us up to think more carefully about the use of teachers,
learners and the many experts available online. The internet is forcing
us to rethink the way we use the 'face time' we have at school.
Students can enjoy TED (technology, entertainment, design) lectures,
explore initiatives like the Khan Academy,[35] use YouTube, and learn
from countless excellent sites on the web. Online worlds also allow
opportunities for simulation, game playing, trial and error, safe practising
and, increasingly, peer teaching. Generations Y and Z have learned that
proceeding at their own pace and in their own way is the norm on the
web. Well-honed scepticism will be an essential desired outcome from
such learning, as they constantly seek to distinguish good and bad,
reliable and unreliable sources of information on the internet.

Flipped learning is much discussed at the moment. Drawing on work
by Eric Mazur[36] and others, the 'flip' here is to assume that, with
technology, much of the 'teaching' can be done outside the classroom;
time at school can be focused on higher-order interactions between

teacher and learner.[37] Sugata Mitra's work is similarly compelling in demonstrating the formidable learning power generated by a small group of children who are allowed and encouraged to explore and create self-organised learning environments – especially if they have access to a computer and the internet. Teachers are not redundant, but children can get an amazingly long way by themselves. Mitra's 'school in the cloud' concept is an imaginative act of school redesign,[38] especially as it combines collaborative learning – small groups of four or five students – with technology.

### Role of the teacher: facilitative or didactic

How should teachers be? What roles should they play? The decisions teachers make about their overall approach, whether it is mainly facilitative or mainly didactic, really matters, because it says much about their approach to knowledge, to learning and to learners. While being facilitative or being didactic may appear at first to be a straight choice of style, in reality it is a complex decision.

The idea of the teacher as facilitator is not new: it has been explicitly part of an approach to learning referred to as 'constructivist' for some hundred years. From a constructivist perspective, learning is created by an interaction between people's ideas and their experiences with other people. The goal of any learning intervention is the generation of new knowledge in collaboration with others. Such an approach requires resourcefulness and group-working skills in large measure. The core principles of the constructivist approach have been usefully summarised by John Savery and Thomas Duffy.[39] They include the creation of

> The goal of any learning intervention is the generation of new knowledge in collaboration with others, (which) requires resourcefulness and group-working skills.

authentic tasks that are anchored to the real world; high levels
of ownership by learners of the tasks they undertake; learning
environments that support and challenge learners' thinking; and
opportunities for learners to select as they develop alternative ideas
and strategies.

There are those who challenge a totally constructivist approach.
For example, Paul Kirschner and colleagues ask us to think more
carefully about when teacher guidance rather than freer facilitative
approaches are beneficial. They argue that the architecture of the
brain, specifically the processes of long-term and working memory,
sometimes demands clear instruction rather than endless problem-
based approaches. To be expert problem-solvers, they remind us,
we need plenty of experiences stored in long-term memory.
Facilitative styles of enquiry or problem-based learning require more
short-term memory capacity and may thus leave less capacity available
for thinking and learning. Kirschner and colleagues conclude:

> Controlled experiments almost uniformly indicate that, when
> dealing with novel information, learners should be explicitly
> shown what to do and how to do it.'[40]

Indeed, many of us can recall powerful learning moments from our own
schooldays when a passionate teacher instructed us in something. And,
providing the processes of learning are made visible, then these kinds
of teacherly expositions are a different kind of didacticism from what
has been referred to as 'chalk and talk', or the 'sage on the stage' (a
teacher talking for a long time at students). So it is not either/or: a good
lecture can sit very comfortably within a predominantly studio learning
environment, as Lois Hetland and colleagues at Harvard's Project
Zero have shown. They describe clearly the value of what they call the
'demonstration lecture' – 'a brief, visually-rich lecture by the teacher to
the class (or to a small group) that conveys information that students will
use immediately.' Such moments of didacticism work, the Project

Zero research suggests, because they are focused, efficient, visually engaging, of immediate relevance, short and connected to skills and concepts already introduced.[41]

### Role of the learner: proactive or dependent

There is an 11th dimension of the classroom, which concerns the learner rather than the teacher. A major outcome, we hope, of the Redesigning Schooling initiative will be an agreed shift in the role of the learner. Learners need to be able to teach themselves and others, be resilient, set challenging goals for themselves, give and receive feedback and generally collaborate in a classroom learning community.

In short, as in figure 4, the 11th dimension and outcome of all of the first 10 is that learners become more proactive and less dependent as they gain in confidence and expertise.

### Figure 4

Proactive                                                              Dependent

**Role of the learner**

# Chapter 4

# What kind of leadership will create the desired kinds of teaching and learning, so students leave school with your desired learning outcomes?

///////////////////////////////////////////////////////////////////////////////

This kind of change really needs leadership: bluntly, we are not there yet. There are many schools throughout the UK, and indeed worldwide, that are grappling with the questions outlined above, and are making substantial progress. But there is always more that can be done to strengthen the learning culture of a school, and a great many more schools that could join in the adventure of redesigning schooling. Even within good schools, the use of dispositional teaching and expansive education methods can be quite patchy. Many schools, for example, are only just beginning to develop methods for monitoring their own progress and performance, as far as achieving their chosen DOEs is concerned. How you evidence progression in resilience or creativity is a vexed and complex question, yet one that we should not duck. We need to know whether our redesigns are being successful.

> A great many more schools could join in the adventure of Redesigning Schooling.
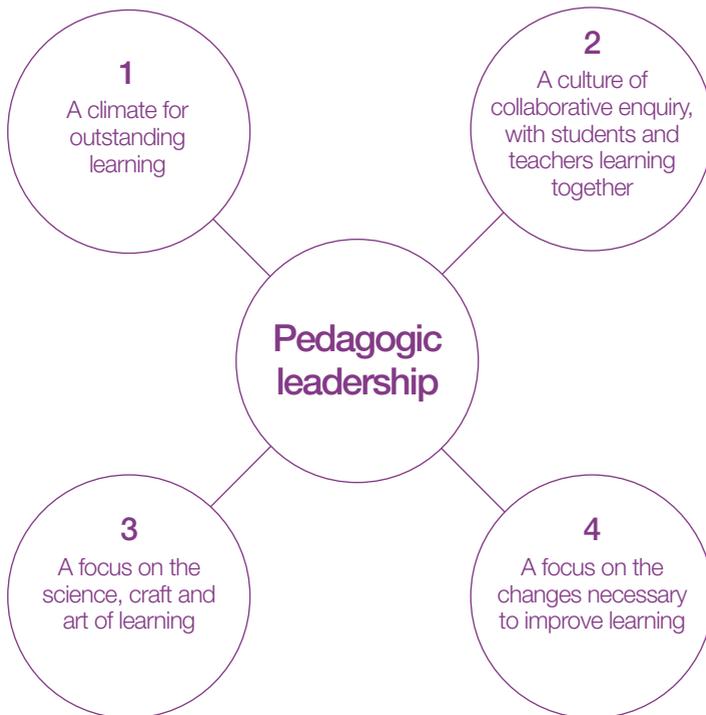
So leadership is paramount. As a whole, schools need a far greater concern with the development of pedagogy – the art, science and craft of teaching and learning. Yet this need to prioritise the minutiae of teaching is happening at a time when external pressures can all too easily distract school leaders from focusing on pedagogy, on creating the conditions in which effective approaches to teaching and learning can thrive.

In thinking about leading these kinds of change, the concept of 'pedagogic leadership' is helpful. Figure 5 describes four elements of pedagogic leadership.[42]

**Figure 5:** Four aspects of pedagogic leadership



1
A climate for outstanding learning

2
A culture of collaborative enquiry, with students and teachers learning together

Pedagogic leadership

3
A focus on the science, craft and art of learning

4
A focus on the changes necessary to improve learning

The concept of pedagogic leadership is widely used in schools and early years settings in the USA, South Africa and Australia, and in the education of Maori students in New Zealand. In England, SSAT is one of the few organisations to have promoted such a concept, through the series of meetings with headteachers around the country and subsequent pamphlets on deep leadership by David Hargreaves (2006)[43] and Alma Harris (2009).[44]

The concept stimulates a useful set of leadership questions:

1. **How do you create a climate for outstanding learning in schools – where 'outstanding' is not measured in terms of a single-minded obsession with test scores, but embraces a wider set of desired outcomes?**

   While we need to maintain 'standards', as conventionally defined, we need also to devise new ways of teaching that help students develop self-control, concentration, imagination and a sceptical attitude towards knowledge claims (for example). Leading the creation of such a climate is a specialist task.

2. **How do you create a culture of collaborative enquiry, with students and teachers learning together in schools?**

   High levels of collaboration, around problems that are genuinely difficult, are needed for both staff and students. Staff need to be able to talk and plan together in a productive manner, support one another and deal with the inevitable anxieties and uncertainties that change brings. A strong community of enquiry among the staff also creates a contagious mood of openness and enquiry throughout the school as a whole. And students, as well as benefitting from this culture, also need direct help and opportunities to develop a spirit of convivial learning that goes well beyond the traditional use of 'group work'. Building those parallel cultures of collaboration in the staffroom and the classroom is a leadership task that takes time and finesse.

3. **How do you ensure a focus on the science, craft and art of learning in schools?**

   The senior leadership of a 21st century school needs to plan for a distributed model of pedagogical leadership throughout the school. Year heads and heads of department need to be helped to develop a focus on pedagogical leadership and on the design and careful implementation of professional learning communities. These must genuinely and cumulatively contribute to the development of a home-grown, tried and tested bank of craft knowledge that is shared widely across the school. Effort may also need to be put into developing a culture of collaborative learning between students. The competitive, individualistic culture driven by exams needs to be constantly mitigated by encouraging inquisitiveness and collaboration.

4. **What does this mean in practice?**

   Leadership means anticipating and planning for all the pitfalls and irritations that necessarily accompany any significant culture change. How are we to reward the pioneers and champions while spurring on those who are more cautious or even cynical? Which are the areas of the school where we might make quick progress, and which are the ones that might need more 'softening up' before we embark on change? How can we get staff on board when our results are good and many do not see the need to change? And so on. It is on the resolute, creative addressing of such issues that pedagogical leadership stands or falls.

And this is where we want to end this pamphlet, for it has been written deliberately to encourage dialogue. We now want to know what you think. We'll close with a few questions that might help you to frame your thoughts and responses...

- Are our DOEs close to what you believe the outcomes of education should be?
- Do our observations about learning resonate with you?
- Do our eight principles of school redesign make sense?
- Could you make use of our '10 dimensions of expansive pedagogy' tool? If so how could you use it?
- And how would you answer our pedagogic leadership questions above?

Please send your ideas and responses to redesigningschooling@ssatuk.co.uk.

**Good luck!**

# Notes and references

1.  One event, organised in partnership with City & Guilds, looked specifically at practical and vocational pathways through schools. The structure and argument of this paper draws on discussions in that context, as well as more general events.

2.  See, for example, Wiliam, D. (2011), *How do we prepare students for a world which we cannot imagine?* Paper presented to the Salzburg Global Seminar on Education, December. Available from www.dylanwiliam.org.

3.  Quoted in Aldrich, R. (1982), *An Introduction to the History of Education*. London: Hodder and Stoughton.

4.  See www.moe.gov.sg/education/desired-outcomes. You may be struck by how similar these aims are to those of the Scottish National Curriculum for Excellence, or, indeed, the 'disappeared' English curriculum that introduced the cultivation of personal learning and thinking skills as an essential element of key stage 3.

5.  See www.acara.edu.au/verve/_resources/National_Report_on_ Schooling_in_Australia_2010_live.pdf.

6.  'Writing in *Mail on Sunday* in March [2013], Mr Gove said: "Survey after survey has revealed disturbing historical ignorance, with one teenager in five believing Winston Churchill was a fictional character while 58 per cent think Sherlock Holmes was real." Those surveys, the department has now revealed in response to a Freedom of Information request, included research conducted by Premier Inn, the budget hotel chain, UKTV Gold

and "an article by London Mums Magazine". None are known for their work in this field.' Matthew Holehouse, *The Telegraph*, 13 May 2013. Or see, for example, www.gov.uk/government/speeches/michael-gove-to-ofqual-standards-summit.

7.  The fact that we often forget that these *are* choices does not make them any the less so. There are cultures, for example, where essential facets of 'intelligence' include kindness and the ability to retell legendary stories with accuracy and panache.

8.  Costa, A. and Kallick, B. (2009), *Habits of Mind Across the Curriculum: Practical and creative strategies for teachers*. Alexandria, VA: ASCD. The phrase 'habits of mind' is originally associated with the functionalist philosophy of John Dewey, who is the 'patron saint' of expansive education. We mostly use the phrase generically, rather than to refer to the specific framework of Costa and Kallick.

9.  Perkins, D.N. and Ritchhart, R. (2004), When is good thinking? In D.T. Dai and R.J. Sternberg (eds), *Motivation, Emotion and Cognition*. Mahwah, NJ: Lawrence Erlbaum.

10. See OECD, www.oecd.org/pisa/35070367.pdf

11. Claxton, G.L., Chambers, M.C., Powell, G. and Lucas, B. (2011), *The Learning Powered School: Pioneering 21st Century Education*. Bristol: TLO Ltd.

12. Expansive Education partners in the UK include the RSA's Opening Minds, Habits of Mind, SSAT, Building Learning Power, Thinking Schools, Philosophy for Children and ASDAN.

13. Lucas, B., Claxton, G.L., and Spencer, E. (2013), *Expansive Education: teaching learners for the real world*. Melbourne: Australian Council for Educational Research.

14. This point is developed in Claxton, G.L. (2013), *Schools as an Epistemic Apprenticeship: The case of building learning power.* 32nd Vernon Wall Lecture, Education Section. Leicester: British Psychological Society.

15. This expression was first coined by Philip Jackson in Jackson, P. (1968), *Life in Classrooms*. New York: Holt, Rinehart & Winston.

16. For an extended exploration of the concept of epistemic apprenticeship, see Claxton, G.L. (2013), *Schools as an Epistemic Apprenticeship: The case of building learning power.* 32nd Vernon Wall Lecture, Education Section. Leicester: British Psychological Society.

17. CBI (2012), *First Steps: a new approach to our schools*. London: CBI, p8.

18. See, for example, Boniwell, I. and Ryan, L. (2012), *Personal Well-being Lessons for Secondary Schools: Positive psychology in action for 11 to 14 year olds*. Buckingham: Open University Press.

19. See Wiliam, D. (2008), 'Changing classroom practice', *Informative Assessment,* vol. 65(4): 36–42.

20. In this section we draw heavily on thinking in Lucas, B., Claxton, G.L., and Spencer, E. (2013), *Expansive Education: teaching learners for the real world*. Melbourne: Australian Council for Educational Research.

21. Dweck, C. (2006), *Mindset: The new psychology of success.* New York: Ballantine Books.

22. This phrase was coined by Anders Ericsson.

23. See, for example, Watkins, C. (2010), Learning, Performance and Improvement, *INSI Resarch Matters* No. 34. London: IoE.

24. Hattie, J. (2009), *Visible Learning: A synthesis of over 800 meta-analyses relating to achievement*. London: Routledge, 2009, p.25.

25. Resnick, L. (1987), 'Learning in school and out', *Educational Researcher*, 16 (9) 13–20.

26. Perkins, D. (2009), *Making Learning Whole: how seven principles of teaching can transform education.* San Francisco: Jossey-Bass.

27. Perkins, D. & Salomon, D. (1988), 'Teaching for transfer', *Educational Leadership*, 46 (1) 22–32.

28. Csikszentmihalyi, M. (1990), *Flow: The psychology of optimal experience*. New York: Harper and Row.

29. Csikszentmihalyi, M. (1996), *Creativity: Flow and the psychology of discovery and invention*. New York: HarperCollins.

30. Hetland, L. et al (2007), *Studio Thinking: the real benefits of visual arts education*. New York: Teachers College Press.

31. Pea, R. (1993), 'Practices of distributed intelligence and designs for education', in G. Salomon (ed.), *Distributed cognitions: psychological and educational considerations*. Cambridge: Cambridge University Press.

32. Dewey, J. (1916), *Democracy and education*. New York: Macmillan.

33. Boud, D. (2001), 'Introduction: making the move to peer learning', in Boud, D., Cohen R., & JSampson, J. (eds.), *Peer learning in higher education: learning from and with others*. London: Kogan Page.

34. Lave, J. and Wenger, E. (1991), *Situated learning: legitimate peripheral participation*. Cambridge: Cambridge University Press.

35. www.khanacademy.org.

36. For a description of this, see harvardmagazine.com/2012/03/twilight-of-the-lecture.

37. See, for example, Crouch, C. and Mazur, M. (2001), 'Peer instruction: ten years of experience and results', *American Journal of Physics*, vol. 69, 9:970.

38. www.ted.com/speakers/sugata_mitra.html

39. Savery, J. and Duffy, T. (1995), 'Problem based learning: an instructional model and its constructivist framework', *Educational Technology*, 35(5): 31–8.

40. Kirschner, P., Sweller J., and Clark, R. (2006), 'Why minimal guidance during instruction does not work: an analysis of the failure of constructivist, discovery, problem-based, experiential and inquiry-based teaching', *Educational Psychologist*, vol. 41, 2:75–86.

41. Hetland, L. et al, op. cit.

42. The following are indicative of this literature: Macneill, N., Cavanagh, R., Silcox, S., 'Pedagogic Leadership: Refocusing on Learning and Teaching', 9(2). *IEJLL: International Electronic Journal for Leadership in Learning*, North America, 9 Jan 2005. Available at: iejll.synergiesprairies.ca/iejll/index.php/ijll/article/view/402, date accessed: 6 Aug 2013. Macfarlane, K. et al (2011), 'Developing and sustaining pedagogical leadership in early childhood education and care professionals - Final Report'. Strawberry Hills, NSW: Australian Learning and Teaching Council. Educational Review Office (2012), *Alternative Education: An Evaluation of the Pedagogical Leadership Initiative*, Wellington, New Zealand. This concept of pedagogic leadership is currently being developed by Bill Lucas, Guy Claxton and the 157 Group.

43. Hargreaves, D. (2006), *Deep leadership - 1.* London: SSAT.

44. Harris, A. et al (2009), *Deep leadership: Emerging learning from the development and research network.* London: SSAT and NCSL.

This pamphlet is the second in SSAT's Redesigning Schooling series to help identify the big questions, look at lessons from other systems, and shape the debate on how we take our education system to world class.

For a full list of SSAT publications, visit **www.ssatuk.co.uk/library**

**SSAT** | inquire
inspire
innovate
impact