School as a foundation for lifelong learning: the implications of a lifelong learning perspective for the re-imagining of school-age education

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IFLL

Inquiry into the Future
for Lifelong Learning

School as a foundation for lifelong learning:

The implications of a lifelong learning perspective
for the re-imagining of school-age education

IFLL Sector Paper 1

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Foreword

This is the first of the Sector Papers to be published from the Inquiry into the Future for Lifelong Learning (IFLL). The Sector Papers will discuss the implications of lifelong learning for each of the sectors involved in providing learning opportunities: pre-school, school, FE, HE, private trainers, third sector organisations and local authorities. The goal here is to encourage innovative thinking on how these parts do or do not fit together, as part of a systemic approach to lifelong learning.

The Inquiry was established in September 2007 and will produce its main report in mid-2009. It is sponsored by the National Institute for Adult and Continuing Education (NIACE), with an independent Board of Commissioners under the chairmanship of Sir David Watson. Full details of the Inquiry can be found at www.niace.org.uk/lifelonglearninginquiry.

The overall goal of the Inquiry is to offer **an authoritative and coherent strategic framework for lifelong learning in the UK**. This will involve:

- articulating a broad rationale for public and private investment in lifelong learning;
- a re-appraisal of the social and cultural value attached to it by policy-makers and the public;
- developing new perspectives on policy and practice.

IFLL: principal strands

The Sector Papers are complemented by several other strands of IFLL work:

- *Thematic Papers*. These relate nine broad themes, such as demography, technology or migration, to lifelong learning. Each one reviews evidence submitted to the Inquiry, and then draws together strands from the debate into a synthesis of the issues, with key messages.
- *Expenditure Papers*. These will provide a broad overall picture of expenditure on all forms of lifelong learning: by government, across all departments; by employers, public and private; by the third sector; and by individuals and households. The goal is to provide a benchmark for mapping future trends.
- *Public Value Papers*. These will look, from different angles and using a variety of techniques, at the 'social productivity' of lifelong learning, i.e. what effects it has on areas such as health, civic activity or crime. The goal is both to provide evidence on these effects, and to stimulate a broader debate on how such effects can be measured and analysed.

- *Learning Infrastructures.* Unlike the others, this strand consists not of a series of papers but a set of scenarios, designed to promote debate and imagination on what the infrastructure for learning might look like in the future. This challenges us to integrate the physical environments of learning, the virtual environments or learning technologies, and people's competences and behaviour.

Published papers are available from the IFLL website:
http://www.niace.org.uk/lifelonglearninginquiry/Publishedpapers.htm

Periodic updates on IFLL progress are to be found in our Bulletin:
http://www.niace.org.uk/lifelonglearninginquiry/docs/IFFLBulletin4.pdf

Professor Tom Schuller
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Sir David Watson
Chair, IFLL Commissioners

Introduction

"Happiness lies in the joy of achievement and the thrill of creative effort"
Franklin D Roosevelt

"Things won are done; joy's soul lies in the doing"
William Shakespeare

"One's intelligence is the sum total of one's habits of mind"
Lauren Resnick

The term 'lifelong learning' reminds us that learning is not something solely associated with childhood or with school. Beyond that, though, it has come to mean many different things to different people. For some, lifelong learning refers, above all, to issues of national and international competitiveness, and the creation of the fabled 'world-class workforce' often stressing economic and political concerns. For some, this economic perspective is tied to a concern with continual professional and vocational development throughout a person's working life. It tends to focus on the development of work-based competence or on the kinds of work-related learning provision that is specifically available to the 14–19 or 14–25 age groups.

In addition to these approaches, there is a long and valuable tradition of formal adult education for 'mature learners' after the end of compulsory school. Here providers often deliberately offer opportunities to learn that are *not* tied to issues of employment, employability or economic performance, stressing the value of 'learning for its own sake' or for continued adult well-being. And still others insist on the importance of the many different kinds of learning that extend beyond the worlds of teaching, education and employment: what has been called 'informal learning'. For them, lifelong learning concerns the kinds of learning and exploring that individuals, families, friends and clubs organise and undertake for themselves, without any formal structure of tuition, curriculum or qualification at all.

The perspective we take in this paper is complementary to those illustrated above in two respects. First, we see lifelong learning as a human activity that is in principle separable from any questions of formal provision or support. Our idea of 'learning' includes, but goes well beyond, the kinds of organised instruction that takes place in classrooms, lectures, labs and seminars (or even in chess clubs and U3A meetings). We see learning not as a special kind of activity that happens from time to time in special places, but as a ubiquitous feature of life. Our starting point is the recognition that to be alive *is* to be a lifelong learner. Babies learn their mother's smell. Toddlers learn to walk. Children learn the layout of their new schools and the habits of their teachers. Teenagers experiment with a range of 'possible selves' – they throw out exploratory tendrils of identity into which they might want to grow (at the same time as they are learning about photosynthesis or the causes of the First World War). Adults

learn new skills and vocational forms of speech, the rigours of parenthood and the regulation of their emotions. The elderly learn how to enjoy slower pleasures, to cope with infirmity and to face their own death. From this perspective, lifelong learning is not a choice, it is an inevitability.

Our second perspective concerns the role of school education in the lifelong learning debate. Ever since the concept of lifelong learning was re-energised in the 1990s through a series of international and national policy initiatives[1], there has been extensive public debate about all the perspectives we have listed above apart from one – the role of school as a foundation for lifelong learning. In the UK, with a few exceptions[2], the lifelong learning debate has tended to focus on provision for learning that begins after the years of compulsory education have ceased. There have even been tendencies to equate lifelong learning with 'adult education'. In contrast, we believe that achieving a greater understanding about the role of schooling in the development of a learning society must be a central task of the Inquiry into the Future for Lifelong Learning (IFLL).

Out of these twin perspectives emerge four themes that will organise our discussion:

- the relationship between lifelong learning and the current interest in happiness and well-being;
- the attempt to identify key personal characteristics that underlie a positive or 'healthy' disposition towards lifelong learning;
- the implications for schooling that arise when the development of these aspects of 'the lifelong learning character' is placed at the heart of their purpose;
- the implicit shifts in the ways schools are positioned and understood within their wider communities.

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[1] The report by Jacques Delors to UNESCO, *The Treasure within* and the DfEE's *The Learning Age*, are just two examples.
[2] See Bentley (1998); Field (2006); Hargreaves (2004); Lucas and Greany (2000).

Lifelong learning and well-being

Although our perspective sees lifelong learning as both inevitable and necessary, people's enthusiasm for and attitudes towards such learning obviously differ enormously. Some choose lifelong learning, while others seem to feel they have it thrust upon them. People structure their lives, to a considerable extent, by the pursuits, interests and challenges they are ready, willing and able to undertake. How they do this, and the ways they engage with the challenges they have selected, turns out to be a significant influence on their personal well-being – as well as wider indicators of social cohesion and economic success. (It is worth remembering that the UK ranked in the bottom third of the OECD countries for five of the six dimensions of well-being reviewed by Unicef[3] in 2007.)

Let us make some brief comments on these arguments for a broad approach to lifelong learning. Much of the recent surge of evidence on happiness and well-being makes clear – as do the epigraphs from Roosevelt and Shakespeare at the start of this paper – that personal well-being inheres much more in the satisfaction of pursuing worthwhile challenges than in flashes of good (or ill) fortune.[4] This satisfaction comes in two forms. There is pride in the aftermath of having accomplished, or made satisfying progress with, a worthwhile challenge. And there is the online sense of pleasurable immersion in an activity – what Csikszentmihalyi (1990) famously refers to as 'flow' – that arises when the demands of an activity stretch a person's ability to respond to the point where self-consciousness drops away and a sense of total immersion or absorption emerges. The link between the phrase 'being rapt' and the state of 'rapture' is self-evident.

These insights run counter to some conventional 'wisdom' about well-being, that supposes that the pursuit of happiness relies centrally on learning psychological techniques for making yourself feel good, and for 'managing painful emotions'. This strategic approach to emotional self-management seems to be misguided. It is often more 'emotionally intelligent' to understand and embrace feelings of sadness, loneliness or anxiety than it is to interpret them as inimical to well-being and try to manage them away.[5] Well-being depends not so much on being able to avoid or suppress painful feelings, but more on being able to choose worthwhile forms of difficulty to engage in. 'Positive self-esteem' turns out to be much more often a *product* of having made progress on a self-chosen challenge than a *prerequisite* for engagement in the first place. And people live and age better when they have the opportunity and the inclination to learn new things.

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[3] http://www.unicef-irc.org/presscentre/presskit/reportcard7/rc7_eng.pdf
[4] See e.g. Haidt (2006).
[5] This point is captured well in a piece of Japanese Zen calligraphy, which reads: 'Quiet mind. Happy? Unhappy? Still quiet.'

Social cohesion depends, to a large extent, on communities having the courage and imagination to solve their own problems, and is undermined by members who feel helplessly unable to learn. 'Pulling together' in the face of change or challenge creates stability, camaraderie and a sense of social efficacy and empowerment. People who have had the learning stuffing knocked out of them by their upbringing or their schooling – who have learned that there is no point trying to better their reading and writing skills, for example – are socially costly, as well as less happy.

Nationally and economically, the 'highly-skilled and adaptable world-class work-force' is, if nothing else, a workforce not frightened of change and experimentation, disposed to be thoughtful, and keen to acquire and practise new abilities. Globally, issues such as climate change come down, in the end, to the willingness of millions of individuals to change their habits; and issues of global security turn on those same millions being willing, especially under pressure, to forsake an easy path of bigotry and blame for the harder satisfactions of doubt, inquiry, dialogue and deepening understanding.

We could even argue that lifelong learning is built into our evolutionary bones. It is a good strategy for any social group, once it has dealt with subsistence and security, to invest in extending its pool of knowledge and skill as broadly and deeply as it can. It pays to encourage its members to develop their talents and interests for two reasons. People who are used to learning, and skilled at it, are less likely to be caught on the hop when circumstances change. They are more ready to rise to the challenge. And secondly, the competence and understanding they have developed – which may, at the time, have looked indulgent or 'academic' – may just turn out to be of vital importance. Learning 'just in case' is a good survival strategy. As Csikszentmihalyi *et al* (1993) have noted, 'every potential ability, no matter how esoteric it may appear at present, and as long as it is not clearly criminal or antisocial, should be nurtured in case it turns out to be crucial to our future adaptation'.

This point is important. The health of individuals, communities and societies depends on the encouragement of learning that may not look valuable in the light of immediate or short-term needs. It is not just entrepreneurial, technical or vocational skills that need supporting, nor the abilities to navigate the internet and check Wikipedia entries. In the next 50 years, the knowledge that our society needs may as likely come from developments in the arts, spirituality or philosophy as from the invention of ever cleverer machines. We don't know. All we can say, with any confidence, is that lifelong learning, in this broad and intelligent sense, is a vital investment for individuals, communities, nations, and ultimately the planet.

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[6] See Csikszentmihalyi, Rathunde and Whalen (1993).

Lifelong learning as a matter of character

What is it that makes some people positively disposed to lifelong learning in this broad and deep sense, and others more fearful or entrenched? For many, there are clearly important issues of equity, opportunity and social inclusion at stake here. But our second theme leads us to focus on more psychological individual differences. Our interest is not so much in one kind of learning rather than another, nor with one age group rather than another, but with the differences between people that equip some of them to love learning, and to be resilient and resourceful learners, at least in some areas of their lives, while others are more pervasively resistant to change.

Of course, people vary in their learning appetites and interests over time, and from domain to domain. One person might be an enthusiastic and effective learner of football but politically closed-minded; another a keen student of history but a timid explorer in the world of intimate relationships. Equally obviously, the specific learning skills and strategies that deliver success in football are very different from those that result in a well-argued essay. And good fortune and generous support also play a crucial role. Studies of people who have learned to excel in a wide range of different fields of endeavour – sports, music, medicine, the arts and so on – have shown that social support, good coaching and access to resources and facilities for learning, are all highly significant. How well and how fast people learn depend on many factors.

But time and again, people's psychological habits and strategies of learning turn out to be as important as their circumstances. Research strongly indicates that there are certain dispositions, self-beliefs and habits of mind that underpin a generally positive and open-minded attitude to learning.[7] Elite performers have not only the luck and the support, but also the sheer determination and 'mental toughness' to put in the requisite hours of quality practice. And they have either discovered for themselves, or been taught, how to talk to themselves productively, how and when to use imagery and mental rehearsal, and how to pick out and practise 'the hard parts' and then reintegrate them into fluid expertise. To summarise a good deal of research: people become experts because they were lucky enough to have developed, often but not always early in life, the attitudes and habits of mind that enable them to extract the learning 'juice' from their experience with great speed and efficiency (and therefore with greater pleasure and satisfaction). Learning involves mastering domain-specific 'tricks of the trade', to be sure, but it also reflects these slower-forming, but still malleable, qualities and traits of temperament.

It remains an open question whether the differences between people as learners partly reflect some genetic predispositions; but we can be quite sure that these 'Learning-Oriented Habits of Mind' themselves are also powerfully influenced by

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[7] Just as there are learned dispositions towards narrow-mindedness and bigotry. The denial of learning opportunities and necessities itself involves a complex and sometimes costly form of learning: see Goleman (1998).

learning. Carol Dweck[8], for example, has shown, in a wide range of studies and contexts, that people's levels of resilience in the face of difficulty or frustration reflect beliefs and assumptions they have acquired about their own mentalities. And she has also shown that these beliefs remain open to modification well into adolescence and adulthood. Indeed, such eminent researchers as Lauren Resnick and David Perkins[9] have revised the very concept of intelligence to focus much more on qualities of mind that are malleable than on those that are supposedly fixed, and therefore beyond the educator's ability to influence. Resnick, as we saw in one of our opening epigraphs, now defines intelligence as 'the sum total of one's habits of mind', while Perkins talks confidently of 'the emerging science of learnable intelligence'. Even in fields such as sports and music, where the idea of prodigious innate 'talent' is firmly embedded in the popular psyche, it turns out, on closer examination, that such putative factors play a much smaller role than commonly thought, and some even question whether they exist at all.

[8] See Dweck (1999).
[9] See Resnick (1999) and Perkins (1995).

School as epistemic apprenticeship

Our remarks about the relationship between lifelong learning, well-being and character traits associated with learning lead us directly to the idea that formal education has the potential to focus much more than heretofore on the systematic development of these generic dispositions or habits of mind – and thus to position itself more effectively as laying firm foundations for lifelong, life-wide and life-deep learning.

Debates about school improvement and reform predominantly focus on two dimensions: contents and qualifications. On the one hand, people argue vociferously about what should or should not be 'on the syllabus', on the assumption that the quality of education depends crucially on the selection and transmission of the best possible bodies of knowledge. For example, should History contain 'dates'; should Mathematics contain 'trigonometry'; should English contain Shakespeare? On the other hand, much heat is also generated about the nature of examinations. Should 'vocational' and 'academic' qualifications be combined into a common system? Are our children being 'tested to destruction? How much should students' grades depend on their spelling and grammar?

However, there is a third dimension that is less well talked about than the other two, but possibly even more important from the point of view of lifelong learning. This dimension concerns the kinds of mental skills and attitudes young people are being encouraged to exercise and develop, day in, day out, through the kinds of activities in which they regularly engage. The word 'epistemic' is useful here: it refers to the nature of thinking, learning and knowing. So we can ask: what kind of *epistemic apprenticeship* are young people being put through in schools? What kinds of *epistemic mentality* are they being routinely invited or required to develop? How are they coming to see their place and their authority in the knowledge-consuming, knowledge-making and knowledge-contesting business – what kinds of *epistemic identities* are they being encouraged, wittingly or unwittingly, to grow into? And do the epistemic mentalities and identities that young people are being encouraged to develop – regardless of whether they transfer content effectively and deliver good examination results – fit them for the kinds of learning they will need to do, and the kinds of learning that will enable them to determine and pursue their passions and interests, throughout the rest of their lives?

It is important to be clear that the dimension of *epistemic apprenticeship* is independent of the other two. It is possible to teach exactly the same content, and get the same examination results – but to do it in ways that cultivate different habits of mind. You can 'do the Tudors' in a way that invites, stretches and builds students' capacity to look at the world through other people's eyes, their ability to imagine circumstances different from their own, and their propensity to ask deepening questions about the nature of evidence; or you can set up activities that invite and develop powers of accurate retention, passive acceptance of authoritative 'truth',

and regurgitation on demand. It all depends, to coin another phrase, on the *epistemic milieu* that students find themselves in.

Take another example: the teaching of geometry.[10] In Amber Hill school, teachers give clear explanations and demonstrations, and then students work through the textbook series of graded exercises on their own. In Phoenix Park, a nearby school with the same demographics, teachers set groups of students open-ended problems like: 'you've got 29 fence panels of the same length; what's the biggest area you can enclose with them?' and leave them to figure it out for themselves (with a nudge only when they explicitly request it). At Amber Hill, students are learning the skills of individualised 'sequestered problem-solving': that is, how to solve disembedded problems that are carefully selected, sequenced and graded, on their own. At Phoenix Park, they are stretching their abilities to collaborate, to uncover problems rather than just solve them, to push their own understanding for themselves, and to identify when they need help and what exactly they need to know.

Despite having had little deliberate preparation for examinations, the Phoenix Park students actually outperformed their peers at Amber Hill on their GCSEs and, more importantly for present purposes, they retained and made flexible use of their mathematical knowledge in their out-of-school lives. 75 per cent of Phoenix Park students, when followed up in their 20s, said 'that in their jobs and their lives they thought back to their school mathematics and made use of it'. Not one of the Amber Hill students thought that they had learned anything of real-life use from their mathematics lessons. One of them said: 'When I'm out of school the maths from there is nothing to do with it, to tell you the truth'. The two epistemic apprenticeships are very different. One leaves a residue of useful, transferable knowledge and a positive disposition towards mathematics that last into adulthood. The other vanishes without trace once the exams are over.

This is not just a matter of 'good teaching'. Amber Hill is a 'good school', gets good results, and the parents are pleased with the education their children are getting. It is only on the neglected third dimension that the differences show up. Nor is it a matter of 'inspirational teachers', as if the Phoenix Park teachers were somehow more enthusiastic, charismatic or 'gifted' than their colleagues down the road. The difference lies in a perfectly practical shift in pedagogy, one that any teacher could, at least in principle, make without much difficulty. Different epistemic milieux invite and develop different epistemic mentalities.

It will be clear that the third dimension of epistemic apprenticeship is not something that teachers can opt into or out of. However a teacher structures their classroom or designs their activities, they will necessarily be inviting and strengthening one set of Learning-Oriented Habits of Mind – and neglecting or marginalising another. There is much talk in educational circles at the moment about the teaching of 'life skills', 'key competencies', 'learning-to-learn' and so on, as if this were something we had not

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[10] This example is taken from a very well-conducted piece of research by Boaler (1997).

been doing, and now could add on, as something new. In some schools they have even designed special courses on 'thinking skills' that compete with the traditional subjects for a spot on the timetable.

We commend the new secondary school curriculum, with its explicit emphasis on 'Personal Learning and Thinking Skills', but there is a danger that these important skills will be treated as a bolt-on to the more important business of teaching the traditional subjects.[11] The Learning-Oriented Habits of Mind are misunderstood if they are merely treated as new content, or even as the subject of new kinds of 'mind training workshops'. (We have sat in lessons where something like Howard Gardner's theory of 'multiple intelligences' is taught to students as another collection of *ex cathedra* 'facts', in a way that exercises only the mental muscles of acquiescence and retention, and does nothing whatsoever to make students more multiply intelligent.) So the question is not *whether* we are going to develop young people's Learning-Oriented Habits of Mind, but *which ones* we are going to develop, and are they the ones we think they are going to need most, if they are to become confident, capable and proactive lifelong learners?

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[11] See www.qca.org.uk for details.

Characteristics of the lifelong learner

To put it very crudely, the habits of mind required, and therefore cultivated, by the 19th century curriculum of mass schooling were deference, unquestioning acceptance of authority, neatness, punctuality, accurate recapitulation and 'sequestered problem-solving'. In a variety of straw polls, we have so far discovered no one who thinks that these are the top-priority life skills for the 21st century. Surveys overwhelmingly show that adults and children alike see their worlds as complex, changing, uncertain and ambiguous, and are likely to get more, not less, so. The obvious question, then, is: what are the epistemic mentalities and identities that will enable people to thrive in such a world? What do good learners do? What do they enjoy? How do they react when the going gets tough?

Ask these questions of any educational audience, as we have countless times over the years, and they will tell you. Their descriptions of the Learning-Oriented Habits of Mind for the 21st century, based on their own experience, turns out to map remarkably well onto the picture of effective learning that is emerging from the learning sciences. Researchers have been working on this problem for a number of years, and they too have converged on a set of traits that seem to be widely accepted as the most essential. Agreement is not complete, of course, but the overlaps far outweigh the disparities. When you neaten up a little what teachers, researchers and young people themselves say about the qualities necessary to take advantage of lifelong learning, you get eight broad qualities or dispositions, which we have referred to elsewhere as 'The Magnificent Eight'.[12]

The first habit of the lifelong learning mind is *curiosity*. Children are born curious. They are drawn to learning. They like to engage with things that are new and puzzling – within limits. They meet the world with an attitude of 'What's that?' and 'That's odd…' Curious people like to wonder about things; how they come to be; how they work. They are open-minded, looking for new interests and perspectives. They like to get below the surface of things, to go deeper in their understanding. They know how to ask good, pertinent, productive questions, and they *enjoy* the process of wondering and questioning. Curious people can be challenging: they may not take 'yes' for an answer. They may be healthily sceptical about what they see and are told.

Secondly, confident learners have *courage.* They are not afraid of uncertainty and complexity. They have the confidence to say 'I don't know' – which is always the precursor to 'Let's find out'. They are up for a challenge, willing to take a risk, to try something they are not yet sure how to do. Given the choice, they would rather learn than merely show off how good they already are. Courageous learners can stick with things that are difficult, even when they get frustrated. They are determined in their

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[12] The eight clusters of Learning-Oriented Habits of Mind we present here are a joint development of those we have described in previous publications. See Claxton (2002); Claxton (2008); Lucas (2001); Lucas et al (2006).

learning, and can 'put in the hours' of hard graft when needs be. They can bounce back from blocks and mistakes: they don't stay floored for long. They have what sports coaches call 'mental toughness'. Mistakes are for learning from, not for getting upset about. They are patient and persistent – but they also know when to 'give up' on things, not because they are afraid of failing or looking stupid, but because they have genuinely reappraised the need to know.

Third, powerful learners are good at *exploration and investigation*. They like finding things out. They are good at seeking and gathering information. They are enthusiastic researchers. That can mean reading and thinking and note-taking; but it can also mean just attending carefully and mindfully to situations; taking their time if needs be, not jumping to conclusions, letting the situation 'speak to them'. They are keen observers of other people, always ready to learn by imitation of those who appear to have tactics and strategies that work. They know how to concentrate; they can easily get lost in their inquiries. They like and are good at sifting and evaluating what they see, hear and read: they develop a trust in their ability to tell reliable sources and 'good evidence'. Explorers are also good at finding, making and capitalising on resources that will help them pursue their projects – tools, places, sources of information, other people. They are opportunistic, alive to new possibilities and resources that crop up along the way.

The fourth element of powerful learning is *experimentation*. This is the virtue of the practical inventor and the ingenious, inveterate tinkerer. They like to try things out, sometimes to see if they work, sometimes just to see what happens. They like adjusting things, tuning their skills, and looking for small improvements. They enjoy looking at their 'work in progress' – a garden bed, an essay, a guitar riff – and seeing how they can redraft and revise it. They know how to do 'good practice': how to extract the most learning from their experience. They say 'Let's try…' and 'What if?' They like messing about with interesting material – mud, footballs, PhotoShop, friends – to uncover the 'affordances' of materials, situations and people. They know how to 'prod' things, to get them to reveal themselves. They are happy to try it a different way, to mess it up, make mistakes, if they are not too costly, and if they think they might be informative.

The fifth quality that contributes to lifelong learning prowess is *imagination*. Imaginative people know how to use the creative test-bed of their own inner worlds to generate and explore possibilities. They know the value of running 'mental simulations' of tricky situations to see how they might behave. They are also good at mental rehearsal, practising and smoothing their own performances in their mind's eye. Good imaginers have the virtue of dreaminess: they know when and how to make use of reverie; how to let ideas 'come to them'. But they have a mixture of respect and scepticism toward their own hunches, intuitions and 'feelings of rightness'. They give some credence to these feelings, but also know they need testing and checking out. They like finding links and making connections inside their own minds, and they use a lot of imagery, analogy and metaphor in their thinking. They know when and how to

put themselves in other people's shoes; to look at the world from perspectives that are not their own 'natural' ones.

Sixth come *reason and discipline*. The creativity of imagination needs to be yoked to the ability to think carefully, rigorously and methodically; to analyse and evaluate as well as to take the imaginative leap. Powerful learners are good at 'hard thinking': they are able to construct and follow rigorous trains of thought. They ask 'How come?', and are good at creating explanations that are clear enough to lead to fresh ideas or predictions. They have the ability and the disposition to spot the holes in their own arguments, as well as other people's. Disciplined learners can create plans and forms of structure and organisation that support their learning. They know the value of target-setting, and know how to create goals and deadlines that support their own learning. A good deal of real-life learning involves the deliberate and sustained attempt to put into practice new ideas and skills, often in the face of well-engrained competing habits. Disciplined learners know how and when to be methodical – but they hold their plans lightly, so they stay open to serendipity, and are perfectly willing to think again if needs be. Disciplined thinking enables knowledge and skill to be used to guide learning, to allow the painstaking process of 'crafting' things that usually needs to interweave with and balance more creative 'brainwaves'.

Seventh, powerful learners have the virtue of *sociability*. They know how to make good use of the social space of learning. They are happy collaborating, and good at sharing ideas, suggestions and resources. They are good members of groups of explorers; but, more than that, they can help groups of people become really effective learning and problem-solving teams. They have the knack of being able to give their views and hold their own in debate, and at the same time stay open-minded. They can give feedback and suggestions skilfully and receive them graciously. They are keen to pick up useful perspectives and strategies from others, but they are also socially discerning. Effective learners seem to know who to talk to (and who not to), and when to talk (and when to keep silent) about their own learning. They are good at judiciously balancing sociability with solitariness: they are not afraid to go off by themselves when they need quiet time to think and digest.

The eighth aspect of a powerful learner is *reflection*. They not only think carefully about the object of their learning; they are able to step back and take stock of the process. They can say 'Hold on a minute; how are we going about this? What assumptions have we been making?' They will routinely mull over their own *modus operandi* and consider alternative strategies and possibilities. They somehow know when these moments of taking stock are useful, and they don't get stuck in the trap of being over-reflective: too analytical or self-critical. Reflective learners don't just have insights; they use their self-awareness to change the way they do things. Good learners are self-aware, interested in contemplating their own habits, strengths and weaknesses as they go about learning, and able to think strategically about how they can become even stronger and well-rounded in their approach.

They think about where and how they can apply what they already know, and where else they can make use of new ideas and skills. They are adept at 'reading' different contexts so that they can transfer and use expertise acquired in one situation to another possibly unfamiliar one. They have a rich vocabulary for talking about the process of learning – for example, when and how they learn different kinds of things best – and also about themselves as developing learners. They see themselves as continually growing in their learning power and capacity. They don't get stuck in a view of themselves as 'bright' or 'average'. Above all, powerful learners know the value of a positive mindset, accounting for events with a certain mental optimism. When things go wrong they say 'I must have been having an off day' rather than 'I always find this hard'. They look for explanations for difficulties or mistakes that suggest avenues for further learning, rather than ones that leave them feeling helpless.

As we have seen, these descriptions of the putative core qualities of the confident learner have broad face validity as well as the backing of a range of researchers. Even these brief paragraphs give an indication of the rich *epistemic curriculum* towards which they might lead. They certainly invite us to ask new kinds of questions about the design of schools. Essentially, they challenge us to think laterally about how syllabuses, timetables, assessments, environments, resources and teaching styles might need to change if schools were to aim more explicitly and more effectively at the cultivation of these eight qualities.

The epistemic culture of the school

We are very far from having well-researched answers to the questions we have posed so far. Indeed, schools and classrooms are such complex, systemic environments, composed of a welter of shifting and interacting influences, ideas and practices impinging from outside, as well as arising internally, that the quest to isolate key factors, and to establish simple causal relationships, may well be doomed. Claims for the efficacy of specific interventions should always be treated with a good degree of caution. Smaller class sizes, or the introduction of 'synthetic phonics' or 'the three-part lesson', are not magic bullets, but perturbations on complex adaptive systems that will have systemic and sometimes unpredictable effects.[13] Progress in this area is being made, but it comes from the progressive accumulation of research of a variety of different types. These include some laboratory studies in the cognitive and learning sciences; quasi-experimental investigations and design experiments; correlational studies and meta-analyses; longer-term ethnographic and observational studies of real classrooms as they undergo change; and teacher-researcher action projects and case studies.

An overview of these different sources of information is beginning to suggest a general approach to school improvement that puts 'learning to learn' at the heart of the school culture. We can begin to identify a number of areas of school and classroom life that may contribute to the development of Learning-Oriented Habits of Mind. The general approach, as we have suggested in the preceding paragraph, is to look not for new interventions that can be tacked on to 'business as usual' – these seem to produce only short-lived and highly context-dependent gains at best[14] – but to focus instead on the ways in which beliefs and attitudes about learning are carried within the culture of the school or classroom as a whole. The ethos or climate of a school is composed of many different threads – written information, school rules, the way parents are treated and involved, and so on – and it may well be that the 'messages of the medium' impact more powerfully on students developing habits and dispositions towards learning than do explicit lessons or exhortations.[15] Let us illustrate the kinds of ingredients of a school culture that seem to be emerging strongly from our own action research work with teachers.

Language

Certain beliefs and values about learning are conveyed through the types of conversation and commentary that characterise a school. The default discourse of many classrooms typically emphasises the completion of tasks, and relatively neglects

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[13] See Wiliam 'Keeping learning on track: classroom assessment and the regulation of learning', in Lester, F. K. (ed) (2007).

[14] Hattie, Biggs and Purdie (1996); Perkins and Grotzer (1997).

[15] Tishman, Jay and Perkins (1993) 'Teaching thinking dispositions: from transmission to enculturation.'

the habits of mind that are being recruited and exercised by those tasks. The perpetual use of phrases like 'get on with your work', 'how's your work coming on', and so on imbue the classroom with the former view. An increasing number of classrooms, however, have developed a default discourse that focuses on learning as an activity that is itself both problematic and interesting. 'How did you do that?', 'what else could you try?', 'what is hard about that and what would help?', 'where else could you make use of that?' and 'how could you help someone else learn that?' may be prompts that are used first by the teacher, but are encouraged to become the basis for the kind of chat that occurs between students themselves as they engage with the challenges that have been provided. In classrooms like these there is a very different attitude towards knowledge, with few pat answers and the opportunity to ask questions to which no-one, very often including the teacher, knows the answer.

Talk about learning related to the developing Learning-Oriented Habits of Mind of individual students, as well as to the here-and-now process of learning. 'The Magnificent Eight' provides a linguistic template that teachers can use to scaffold the way they talk and write about students. Written comments on students' work, for example, could draw attention to the habits of mind being used, while periodic reports on students' development might attempt to capture them as growing learners, rather than (or as well as) being high or low achievers, well or badly behaved, able or less able, and so on.

The extent to which students are 'typed' and talked about in terms of their hypothetical level of all-round 'ability' is particularly important. Carol Dweck's research has shown that describing students in ways that presume a relatively fixed, relatively pervasive level of ability or intelligence, leads them to adopt what she calls performance rather than learning goals. They see their job as trying to *prove* that they are 'able' rather than to *improve* their achievements through learning. This orientation leads them to adopt more conservative goals, to try less hard, and even to seek to cheat or assign blame if they fear their display of proficiency is not going to be successful. Those who believe, in the words of one of Dweck's experiments, 'it's possible to get smarter', however, are more willing to 'give it a go', tend to try harder, enjoy difficulty more, and to be more generous and collaborative in their relations with fellow learners.

The important message of this research – that the fixed-ability attributions that young people hear directly undermine the development of their Learning-Oriented Habits of Mind – can be translated into a positive shift in the way teachers think and talk about their students.[16] Of course, no one would deny that, in any group of people, at some point in time, some will be better at anything you care to name than others (whether that be running 100 metres, spelling 'necessary', or asking pertinent questions). The challenge for schools is not to deny the patent differences in students' current levels of achievement, but to refrain from attributing those differences to factors over which people feel they have no control, and which are taken to be negative indicators

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[16] See Dweck (2006).

of self-worth. (Saying 'I haven't learned how to draw faces very well yet' is a very different statement from saying 'I'm hopeless at drawing'.) Though these beliefs exert a powerful influence on people's choices, behaviours and feeling about learning, and can persist, if unchallenged, throughout their lives, Dweck has shown that even small linguistic shifts on the part of parents, teachers, coaches and managers can change those beliefs quite readily. Careless talk costs learning lives, we might say.

The power of example

Recent research in cognitive neuroscience has reminded educators of the powerful role that imitation and modelling can play in the transmission of both functional and dysfunctional learning beliefs and habits.[17] This kind of 'social contagion' accounts for a good deal of learning in childhood – the ways children pick up their families' habits of structuring, evaluating and talking about their daily lives, for example – and though children learn to moderate their openness to contagion as they grow up, there is no reason to suppose that this kind of learning is absent from schools. On the contrary, the teachers who stick in young people's memories tend to be the ones they admired, and 'would like to be like'.

What teachers model, in their attitudes to learning, may therefore be as important as what they think they are teaching more consciously. Children are notorious for learning to 'do as I do', not 'do as I say'. So the opportunity is there, for schools that want to cultivate Learning-Oriented Habits of Mind, to review the extent to which their staff are modelling 'The Magnificent Eight' in their daily interactions with students (and their parents). One primary headteacher we know, for example, starts each new school year by publicly trying to play a musical instrument that he has never attempted before. He then commits himself to learning to play the instrument over the course of the year, and talks to the children about what Learning-Oriented Habits of Mind he is going to need if he is to be successful. At regular intervals he shows them how he is getting on. In many schools there is plenty of room to find new ways in which teachers can model enthusiastic exploration, rather than dogmatic certainty, in their dealing with students both in and out of lessons.

Pedagogy

Lessons can be explicitly designed to stretch and strengthen a broader range of Learning-Oriented Habits of Mind. In a widely used and well-researched teaching approach called 'assessment for learning', teachers coach students in the skills and virtues of evaluating and improving their own 'work', and of being able to give feedback kindly to others and receive it graciously. 'Assessment for learning' teachers are open about sharing with students the criteria on which judgments and evaluations are made, and where possible discussing and negotiating those criteria with them. Far from being

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[17] See, for example, Hurley and Chater (eds) (2005).

a liberal intervention that puts examinations results at risk, 'assessment for learning' has been shown to improve students' GCSE results by an average of half a grade.[18]

After they have left school and college, however, lifelong learners can no longer expect to have someone looking over their shoulders, continually assessing their performance and telling them how to improve (thank goodness), so they will need to have skills and dispositions to do it for themselves. And where they are assessed, they will benefit from being able to 'take criticism' without getting defensive or upset. So it makes perfect sense, from a lifelong learning perspective, to begin the systematic cultivation of those habits of mind at school.

Curriculum

Behind the approach we are taking in this paper lies a simple assumption: that education at school is, above all else, a preparation for the future. School's core responsibility is to cultivate in young people the habits of mind they are going to need to thrive in the world which we anticipate they will inhabit. Acquainting them with the fruits of the past is a subsidiary goal, and should be seen mainly as a means through which those forward-looking Learning-Oriented Habits of Mind are cultivated. Knowing the Kings and Queens of England, or being able to solve simultaneous equations, are clearly not top-priority life skills in their own right. Their claim for inclusion in the core curriculum rests on the extent to which they provide engaging and effective 'exercise machines' for stretching and strengthening generalisable habits of mind that *are* useful in their own right. If they cannot be shown to be both engaging and effective in this way, their tenure, however venerable, should be under threat. So, while the dimension of epistemic apprenticeship is, as we said, logically orthogonal to the dimensions of content and assessment, it does lead us to ask penetrating questions about how content is selected and presented, and how it is assessed.[19] Harvard's David Perkins, for example, has argued for a much greater proportion of what he calls 'wild topics' in the curriculum – topics that are rich with problems to be found, as well as to be solved.[20]

A new relationship with parents

When at the Campaign for Learning, Bill Lucas was instrumental in creating Family Learning Day (now a week-long festival). An explicit goal of this was to create opportunities for schools to explore new ways of seeing themselves as providers of lifelong learning. Schools laid on a range of innovative opportunities for parents, carers and other members of their local community to experience taster learning sessions. Where these kinds of examples are successful, they momentarily transform the

[18] See Black, Harrison, Lee, Marshall and Wiliam (2003)
[19] See Claxton (2008) for an elaboration of this general argument, and Claxton (2004) 'Mathematics and the mind gym: how subject teaching develops a learning mentality', in *For the learning of mathematics*, 24(2), pp.27–32, for the argument applied to mathematics.
[20] Perkins (2008).

prevailing model of school, nudging it closer to being the kind of foundation for lifelong learning for which we are arguing. The trick will be to make such schools the norm. We suggest that schools that are truly wanting to become centres of lifelong learning have a very different understanding of parents' role in their children's education[21]. Instead of schools being 'the place where you send your kids', they become 'the place where you go to learn, regardless of your age, and where you also send your kids for some of their formal education.' The current interest in extended schools[22] is definitely encouraging, but, for real change to occur, schools will need to change their mindset, seeing parents both as carers *and* as lifelong learners.

Environment

If school is a preparation for a learning life, the way it is structured and designed should embody that aim. Life's problems do not come neatly butchered, arranged and graded, like supermarket meat; they are messy and entangled, and the hard work of learning lies, as Perkins suggests, more in clarifying and prioritising problems than in constructing neat solutions according to well-worked procedures. Whilst children need structure, therefore, schools should be continually looking for ways in which their imposed structurings of time and place can be lessened, and, as they show themselves to be ready, handing over more and more responsibility to students for determining where, when, how – and even what – they are investigating. Research such as Jo Boaler's, referred to earlier, shows that this judicious handing over of the ownership of learning to students is not an irresponsible or laisser-faire dereliction of duty, but a direct consequence of a precise reappraisal of the purpose of education. Many schools are reporting that students respond positively to such moves in terms of both engagement and achievement.

Opportunities for more complex learning do not just occur in classrooms. The school grounds can be designed to afford [23] a range of formal and informal opportunities to ground learning in the messier experiences of gardens, woodlands and other open spaces. And we can hope that libraries, museums, workplaces, theatres, historic houses and many other non-school environments wait to beckon students and staff from schools to engage with them in lifelong learning.

Leadership

There are many complex ways in which a school leader can demonstrate that their purpose is to provide all young people with the foundations they need for a lifetime of learning (other than playing a musical instrument in a school assembly, effective though this may well be). But unless school leaders are resolutely clear about their

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[21] See Lucas (2007).
[22] www.teachernet.gov.uk/wholeschool/extendedschools/teachernetgovukcoreoffer/parentingsupport/ has examples of schools exploring these kinds of approaches.
[23] See the practical examples and research conducted by Learning through Landscapes, www.ltl.org.uk/

moral purpose it is almost inevitable that they will become swamped with transient concerns for a very limited kind of school improvement. Clearly everyone wants a school to improve its systems and develop its people in conventional ways. But the real challenge is surely for schools to become better at nurturing the development of well-being, learning character and learning habits of mind. For, in a world of very rapid change the danger is that schools will continue, mistakenly, to evolve to serve a world that no longer exists. Nearly forty years ago Alvin Toffler wrote that 'the illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn.' Expertise in school leadership necessarily involves the moral judgment to discern which processes need to be unlearned and which political initiatives, not well-grounded in the emerging learning sciences, need to be resisted.

Drawing on the experiences of a range of educational leaders Lucas has, with the Centre for Excellence in Leadership[24], identified, six 'core purposes' for educational leaders. The first three seem particularly relevant to our argument here:

- being a role model who combines a love of learning and a genuine interest in the processes of learning;

- ensuring that all staff and all students are grounded in the emerging science of learning as well as expert in their subjects;

- creating a culture in which learning and learners flourish and which is not dependent on the influence of a few people.

We suggest that educational leaders may, themselves, wish to consider the development and modelling of just those learning habits of mind as they will be inculcating in others, sometimes unknowingly, in the epistemic community they call school.

There are dozens of other aspects of school life that can influence the epistemic apprenticeship they offer – the ethos of clubs and games, the involvement of local businesses and community, professional development among the staff, the role of teaching assistants and other support staff, to name but a few. But we hope that the brief examples we have been able to give here have illustrated both the spirit and the practicability of nudging the epistemic milieu of a school in the direction of lifelong learning. As we have said, there is much that remains to be trialled and discovered, and collaborations between practitioner researchers and laboratory based social scientists will bear much fruit in the coming years. But the idea that school could, and should, be reconfigured as a preparation for lifelong learning is already generating a good many practical ideas to be tested and developed, and also considerable enthusiasm amongst teachers, many of whom no longer believe that examination results alone can serve as a valid index of either school or individual student success, nor that more than half of all 16 year olds are bound to leave school with a sense of relative failure.

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[24] See Lucas (2008).

Conclusions and messages

We started this paper by lamenting the lack of real debate on the role of schools in laying down the foundations for lifelong learning and we end it with a request: that the Inquiry initiate a real debate with policy-makers, researchers and practitioners about the future roles of schools and how, if society *really* valued lifelong learning, schools would need to change. The rhetoric of school as a preparation for lifelong learning has been with us for a long time. Way back in 1941, for example, the vice-chancellor of Oxford University, Sir Richard Livingstone, was arguing that 'the test of successful education is not the amount of knowledge that pupils take away from school, but their appetite to know and their capacity to learn'[25]. And many have echoed that sentiment since. But it is only recently that we have begun to understand exactly what the implications of this perspective are for the organisation and running of a school or college. The illustrations we provided earlier are just the tip of a rapidly growing body of knowledge.

And a good deal of this knowledge, drawn from the learning sciences, is already being tested and developed in practice throughout the UK and internationally. At its best, the initiative called 'assessment for learning' develops students who are more independent and self-aware. As we said above, the UK's Qualifications and Curriculum Authority are piloting many of these initiatives with both primary and secondary school, as are the Innovation Unit, The Specialist Schools and Academies Trust, the Campaign for Learning and the Royal Society of Arts. The latter's 'Opening Minds' programme has been particularly successful and inspirational. There are hundreds of schools where the foundations of lifelong learning attitudes are already being effectively laid. A number of recent Ofsted reports have made favourable comment on schools' effective cultivation of Learning-Oriented Habits of Mind.

Despite these proven successes, however, much remains to be done. The current emphasis on crude measures of examination performance can work against the lifelong learning agenda, if it leads schools to narrow their curriculum and 'teach to the test'. Though increased attention to the cultivation of Learning-Oriented Habits of Mind results in an increase in examination performance, it can be a brave school that is willing to let go of familiar (and effective) methods of 'spoon-feeding' and trust in the value of encouraging students' greater independence. There is work to be done to convince those who focus strongly on counting up exam results that there are severe costs to their approach. Students can emerge from schools and college with a good clutch of certificates, but unable to think and learn for themselves.

There are also significant implications of our perspective for the professional preparation of teachers. It is not sufficient that they 'know their stuff', and can 'put it across' effectively in a well-managed classroom. They need to be confident, open,

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[25] See Livingstone (1941).

public learners themselves, and not hide behind a cloak of knowledgeability. New teachers need to understand why this is so important, and they need to be helped to develop the confidence to be co-explorers with their students.

These thoughts lead us to make a number of policy messages:

● there should be much more joined-up thinking about the purpose and structure of education that is genuinely 'cradle to grave'. Much is lost if 'lifelong learning' is taken to be disconnected from, and to start after the end of, compulsory schooling;

● steps should be taken to connect up the range of national and international initiatives that are already under way, and to distil the learning that is accruing, about how best to prepare young people for a learning life;

● as a prelude to a more sustained attempt to reviewing initiatives already under way, we suggest that there is an opportunity to showcase current good practice through the publication of web-based case studies and disseminate this in regional events;

● we suggest that the Inquiry might like to commission some bold experiments in the manner of the RSA's Opening Minds project[26], to recruit and nurture schools, both primary and secondary, willing to become living test-beds for the kinds of ideas we have been advocating in this paper;

● given the recent abolition of Key Stage 3 SATs and the pledge to develop a 'balanced score-card' approach to rating schools, it is time to explore broader, more imaginative ways of recording schools' performance, which might well include the degree to which they are learning organisations preparing young people for a lifetime of learning;

● fundamental changes in initial teacher education and continuing professional development are required to bring about real changes in school's attitude to lifelong learning. The Inquiry might like to identify and support a small number of institutions willing to develop and pilot new approaches;

● similarly, the Inquiry might like to identify and support a small number of partner organisations willing to develop and pilot more radical approaches to involving parents both as learners and as adults better able to nurture the development of their children as lifelong learners. This would clearly connect with ambitions articulated in *The Children's Plan*[27] and with concerns, already voiced in this paper, about pupil well-being.

As we have tried to illustrate, a good deal of work has already been undertaken to lay the foundations for a re-imagining of schools as apprenticeships in the craft and the pleasure of lifelong learning. We believe that, if they were to move in this direction, schools could significantly increase the contribution they make towards creating not just a prosperous and secure nation, but a happier and more enterprising one too.

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[26] See www.thersa.org/projects/education/opening-minds and www.openingminds.org.uk/Welcome.html
[27] See www.dcsf.gov.uk/publications/childrensplan/downloads/The_Childrens_Plan.pdf

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