

Learning Is Learnable (And We Ought To Teach It)

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**In the National Commission for Education report
Ten Years On, edited by Sir John Cassell, 2004.**

'The thing that I'm scared of is, say I got laid off, I've got nothing, nothing to help me get another job...I've got no other skill.' Todd, aged 18, bricklayer

'I guess I could call myself smart. I can usually get good grades. Sometimes I worry, though, that I'm just a tape recorder...I worry that once I'm out of school and people don't keep handing me information with questions, I'll be lost.' Emily, aged 15, GCSE student

There are two good reasons for reconfiguring 21st century education: economic and personal. The well-rehearsed economic argument says that knowledge is changing so fast that we cannot give young people what they will need to know, because we do not know what it will be. Instead, we should be helping them to develop supple and nimble minds, so that they will be able to learn whatever they will need to. If we can achieve that, we will have a world-class work-force comprising people who are innovative and resourceful. The personal argument converges on the same conclusion. Many young people are patently floundering in the face of all the complexities and uncertainties of contemporary life: the relatively successful children of the middle class, like Emily, as much as the more conspicuous, traditional failures of the education system such as Todd. Emily sees herself as ready for a life of tests, but not the tests of life. Todd does not even believe that he has it in him to master a new skill.

They differ greatly in how 'literate' and 'numerate', but Emily and Todd are both, in their different ways, 'illearnerate'. They do not think of themselves as effective real-life learners, and they are probably right not to. They think that school has not only failed to give them what they need; it has actually compounded the problem, and they are right again. Many young people live in a *Matrix* world in which there is often no consensual 'reality', no agreement about what to do for the best, and in which nobody taught them what to do when they didn't know what to do. Their public culture of 'cool' is, in part, a reaction to their sense of inadequacy and insecurity in the face of real difficulty. Young people want more real-life gumption, more initiative, more stickability, just as their prospective employers and anxious governments do. More fundamental even than the concern with literacy and numeracy is the need to protect

and develop young people's 'learnacy'. That need is personal and social, even more than it is economic.ⁱ

Government reforms have tinkered with existing provisions and structures in dozens of ways: the timetable, the curriculum, the methods of assessment and so on. Such tinkering has been going on for a long time, and it has not addressed the hole in the heart of education which young people like Emily and Todd are experiencing so keenly. However, recent progress in the human sciences is beginning to fire people's imagination with new possibilities. Science cannot tell a society what its schools should be aiming to achieve, but it can suggest new avenues of thought. One of these is that it is actually possible to help young people become better learners – not just in the sense of getting better qualifications, but in real-life terms. One contributory line of thought comes from cognitive science, one from neuroscience, and one from what is called 'sociocultural' theory. Let me outline each in turn.

In cognitive science, a revolution has taken place in the way we think of 'intelligence'. For a while, people believed a number of rather odd things about intelligence. They believed that it was a dollop of general-purpose mental resource that God or your genes gave you when you were born; that it didn't change much over the course of life; that it followed you around from place to place and didn't vary with the situation; that its main effect was to set a ceiling on what you could achieve; that when you struggled or failed, that was evidence that you had got to the limit of your 'ability'; and that you could reliably measure the size of someone's reservoir of intelligence by asking them to solve abstract puzzles that had no personal meaning or relevance in a strange room under intense pressure. We now know that this model is scientifically indefensible, factually incorrect, and educationally pernicious. It is indefensible because, twins studies notwithstanding, you cannot separate 'nature' and 'nurture' in that way. It is incorrect because intelligence varies enormously across time and place, and IQ bears no relation to being real-life smart. And it is pernicious because it leads people to feel ashamed (rather than challenged) when they find things difficult, and therefore it undermines their ambition and determination.

In fact, there is enormous room for everyone to get smarter by developing their 'learnacy'. Even if there were some hypothetical limit on my ability, in practice I am nowhere near it. True, I am never going to be as fit and strong as Steve Redgrave, nor as fast and tough as Paula Radcliffe, but that does not mean that it is therefore a waste of time my going to the gym. And when I do go, the whole point is to get hot and sweaty and find it 'hard'. Pushing myself need not mean 'I'm hopelessly unfit – and that's that'; it shows me that I'm in the process of getting fitter. It was Jean Piaget who first defined intelligence as 'knowing what to do when you don't know what to do.' And you can get better at that. Lauren Resnick, the doyenne of educational psychologists in the States, now defines intelligence simply as 'the sum total of your habits of mind.' And habits grow, change, and can be broken.ⁱⁱ

This work is also showing that growing more intelligent is not just a matter of learning a few techniques, or even mastering some new skills like 'critical thinking'. It is as much to do with attitudes, beliefs, emotional tolerances and values. And these change more slowly. You can't change someone's interest in learning, or their stickability, overnight. But schools and classrooms have systematic, cumulative influence, as surely as rivers wear away their banks. For example, when teachers change their way of talking with their students about learning, those students' attitudes can change, in turn, within a term (and by the way, their results go up).

The second tributary discipline is neuroscience. One has to tread carefully here, for a great deal of nonsense is being talked about the implications of brain science for

education. It is not true that playing your baby Mozart will make her smarter, nor that your child's brain will dry up if it is not continually drip-fed water from a fancy bottle, though some people will try to tell you otherwise. What *is* important is the understanding that the brain is built to distil the world's hidden regularities into practical expertise, fuelled only by interest and attention. It does so continually, without any supervision, either internal or external, and often in the absence of any conscious comprehension of what is going on.ⁱⁱⁱ Indeed, the effort to seek or maintain conscious comprehension can get in the way of this brilliant 'natural learning ability'. Thinking too much can decrease your intelligence. Being explicit and strategic are not always the smartest ways to learn, and people who become too addicted to conscious clarity undermine their creativity.^{iv}

We are discovering that, during early life, this natural learning ability, placed in an adequate setting, develops itself by discovering and exploiting a range of 'learning amplifiers'. There are many cells in the human brain – the 'mirror neurons' – that automatically get ready to initiate an action that they have just seen someone else do: so many, that it begins to look as if we are hard-wired to pick up the habits of those around us. As the brain builds up a stock of mental models of different people, so we become able to 'put ourselves in their shoes', and explore different scenarios. We can sometimes benefit from turning down the ego control, and become quietly receptive to the *internal* pattern-seeking and metaphor-making that is latent in the brain's *modus operandi*, and this intuitive receptivity, if we cultivate it, becomes central to creativity. And, with language, we develop a whole new toolkit of ways of thinking and learning. Each of these ways of learning – through *immersion* in experience, through *imitation*, through *imagination*, through *intuition* and through the *intellect*, is capable of growing and developing throughout life – provided the context is conducive. We never grow out of the need for any of them, nor do we ever cease being able to refine and develop their power still further. Yet education has tended to treat intellectual learning as the tops, and to neglect the continuing development of the others.

The third discipline is that of sociocultural studies. Back in the 1930s, the Russian psychologist Lev Semyonovich Vygotsky discovered just how much people unintentionally 'pick up' not just their physical but their *mental* habits and values from those around them.^v Children learn, from watching their elders, what to notice, what to ignore, what to laugh at, what to be afraid of. And they also pick up how to respond to uncertainty: what to do (and how to feel) when they don't know what to do, in other words. From this point of view, the way a teacher reacts when a well-planned lesson inexplicably goes wrong, for example, is at least as relevant to students' development as the lesson content. If a teacher never lets her students see her being a learner, but only a 'know-er' (at worst, an anxious and dogmatic knower) she is depriving them of the vital vicarious experience which their brains are built to pick up, and to turn into more effective ways of learning for themselves. Helping young people become better learners means daring to give up the old-fashioned belief that a teacher's top professional responsibility is to be omniscient. (If it's knowledge you want, it's usually easier now to get it from the Internet, anyway.)

What these emerging insights about the mind add up to is an additional way of thinking about the core purpose of education. *Contra* the facile polarisation of commentators such as Chris Woodhead, attending to the *process* of learning does not mean neglecting the *content*.^{vi} Apprentice learners have to have interesting things to learn *about*. But it does mean that, while we are helping our students to learn how to calculate compound interest, or write a poem, or think about the reasons for global inertia in the face of African famine, we are *also* helping them to develop into more confident, curious and capable learners. We can help them develop the

confidence to ask questions, to spot the flaws in an argument, and to know when and how to make productive use of their intuition and imagination. We can start making difficulty more interesting and less shameful, and showing young people what reflective learning looks like.

There are, in short, many lines of educational exploration that are being opened up by the new learning sciences. Already dozens of practical methods for building young people's 'learning power' have been devised, and ingenious teachers throughout the UK (and around the world) are developing more by the day. Some of these are quite unusual or challenging, while others add depth and coherence to more familiar aspects of 'good teaching'.^{vii} Many more questions have been raised than we have yet solved – but that, of course, is the essence of learning. What kinds of topics are best for developing different kinds of learning muscles? How are minds stretched differently by history and physics? How is resilience, say, different for a five and a fourteen-year-old? Does the 'learning power' of boys and girls develop differently, or require different kinds of support? How widely do people vary as learners, and can we help them import their *best* learning habits from the sports hall or the dance class into school (and *vice versa*)? What ways of organising schools will be the most successful for both developing learnacy *and* mastering important bodies of knowledge? As I say, we do not yet have the answers to all these questions. The realisation that learning is learnable, and that learning is a much more complex and variegated process than schooling has traditionally assumed, will underpin curriculum development and educational research for the next ten years and beyond. When the Schools Minister lists 'learning how to learn in preparation for a lifetime of change' as one of the three core purposes for 'the education of young Britons in the 21st century', we might at last be able to go beyond the exhausted mantra of 'raising standards', as if exam results were the only things we could aim to improve.^{viii}

The potential policy implications are many and varied. Let me close by picking out five. First, government policy, through groups such as the 'Innovation Unit' within the DfES, needs to support grass-roots development and *dissemination of good practice* in the particular sense of developing learning-to-learn. Second, the *National Curriculum* needs an overall stock-take, to establish the extent to which its different stages, subjects and targets do, or do not, constitute a coherent, cumulative programme for the development of learning power. Third, *initial teacher education* needs to coach beginning teachers in how to vocalise the processes of learning, to 'learn aloud', and to model effective learning; and this perspective should inform discussions within the Teacher Training Agency, and perhaps also the General Teaching Council. Fourth, *parents* must be encouraged, via national bodies as well as local PTAs, to become partners with schools in developing their children's learning power. And finally, new *assessment instruments* need to be developed that enable students, their teachers and parents to keep track of their developing learning power, so that they can feel a growing sense of achievement, not just in passing tests, but in becoming steadily more resilient, resourceful and reflective in the face of real difficulties.^{ix} If all these can be achieved in the next ten years, and young people come to see that their schooling is genuinely equipping them to meet the complex challenges of real 21st century life, many of them will be inspired to re-dedicate themselves to learning, as a result of which their teachers are likely to re-discover the joy of teaching – oh, yes, and the results go up, too.

Notes

ⁱ The Industrial Society, *Speaking Up, Speaking Out! The 2020 Vision Programme Research Report*, The Industrial Society: London, 1997.

ⁱⁱ David Perkins, *Smart Schools: Better Thinking and Learning for Every Child*, Free Press: New York, 1995.

ⁱⁱⁱ See e.g. Manfred Spitzer, *The Mind Within the Net: Models of Learning, Thinking and Acting*, MIT Press: Cambridge, Mass., 1999.

^{iv} Guy Claxton, *Hare Brain, Tortoise Mind: Why Intelligence Increases When You Think Less*, Fourth Estate: London, 1997.

^v See e.g., Jerome Bruner, *The Culture of Education*, Harvard University Press: Cambridge, Mass., 1996.

^{vi} Chris Woodhead, Cranks, claptrap and cowardice, *The Daily Telegraph*, 2 March 2001.

^{vii} An introduction to these methods is provided in Guy Claxton, *Building Learning Power: Helping Young People Become Better Learners*, TLO Ltd: Bristol, 2002. See www.buildinglearningpower.co.uk

^{viii} David Miliband, North of England Education Conference, January 2003.

^{ix} A team at the University of Bristol, funded by the Lifelong Learning Foundation, has already developed one such instrument, the Effective Lifelong Learning Inventory, ELLI. See Ruth Deakin-Crick, Patricia Broadfoot and Guy Claxton, *Developing an Effective Lifelong Learning Inventory*, in preparation.