

Chapter 1

Learning power: what is it?

This chapter introduces the idea of learning power. It is worth reading this chapter carefully, because it underpins all the ideas about learning power in the rest of the book.

It explains:

- what we know about learning power
- how we can recognise learning power in action
- how learning power is part of a complex ecology of learning
- the seven dimensions of learning power that emerged from research.

INTRODUCTION

The term learning power¹ has become a popular one in schools in the last few years. Understanding what learning power is and how it relates to learning to learn, learning styles, assessment for learning and attainment is essential for anyone wanting to develop learning power in themselves or in their students. This chapter will explain what learning power is and what it is not, based on what we know about it so far from research evidence.

Learning power is something that people recognise intuitively, but it is difficult to explain and understand. This is partly because we have lost the language to describe learning well and partly because it is not something that can be touched, felt, seen or heard!

Learning power is invisible, rather like a form of energy, and this makes it more difficult to understand than something concrete or material. In fact we *can* be specific about particular dimensions of learning power, but these are presumed to be evidence of the *presence* of learning power in a person, rather than learning power *itself*. When we see light in a light bulb, we know electricity is present – we don't see the electricity itself. Learning power is similar.

In this chapter we will first explore why learning power matters and where it fits in the 'ecology of learning'.² Secondly we will explore what it actually is and finally we will look at the dimensions of learning power that have emerged from the research.

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LEARNING AS AN ECOLOGY

Learning is not a simple thing. There are many factors that influence learning that are both inside and outside the learner as a person. For example the quality of relationships in the classroom has a profound impact on learning – trust and acceptance foster learning, whereas fear and boredom inhibit learning. How a learner feels about herself, her aspirations and hopes as well as physical comfort and levels of worry all have an effect on the quality of learning.

Climate for learning

Creating a climate for learning in the classroom means making sure that every activity, relationship and process supports the development of students' learning power

Equally, the climate of the classroom affects how learners can learn – assessment strategies in particular have an impact. For example, we know that formal testing used for grading students actually has a negative impact on learning. It influences what students think and feel about themselves as learners, how they perceive their capacity to learn and their energy for learning.³ Yet some assessment strategies are prescribed by government, and therefore, indirectly,

government policy too, is part of this complex ecology. As in a garden, the ecology needs to be optimal for growing particular types of plants. The right sort of temperature, moisture and nutrients really matter. In developing learning power we need to be able to provide the optimal ecology. Some of the key ingredients which will be touched upon throughout this book include relationships, reflection, self-awareness, motivation, dialogue, trust and challenge, time and space.

LEARNING POWER AT THE HEART OF THE ECOLOGY OF THE CLASSROOM

In a garden the whole purpose of creating an optimal ecology is to release the energy for plants to grow and thrive. In the learning classroom and school, the whole purpose of attending to the ecology of learning is to release the energy for learners to learn and change over time. That is in essence what learning power is: the life energy which is present in all human beings that leads to human growth, development and fulfilment over time. It is this life energy that is behind all human cultural, scientific and humanitarian achievements.

Back in the classroom, however, this core energy for learning is still critically important for those cultural, scientific and humanitarian achievements that make up the fabric of everyday life in school. How we can engage and harness that energy in young learners is the focus of this book.

It is sometimes the case that we get the balance wrong. It is as if what matters most is what teachers do, or the content of the curriculum, rather than learners and learning. Classrooms are still too often dominated by a focus on assessment and testing to see if standards are improving. This has actually detracted from student learning, although 'assessment for learning' strategies are beginning to redress that balance.

Perhaps a more systemic, and therefore more pernicious, lack of balance has been a focus on attainment and raising standards *at the expense of* personal

development. That is not to say that the attainment of knowledge, skills and understanding is not important – it is a central purpose of schooling to which we all aspire. However, its twin purpose is personal development and preparation for adult life, including active citizenship and enterprise. This aspect of schooling, although enshrined in the preamble to legislation and in the inspection frameworks, has had far less sustained attention in research, policy and practice. As we will see throughout this book, the development of learning power is a highly personal process which sits at the heart of both attainment and preparation for adult life. It could also be a key to greater achievement by all students.

WHAT WE DO IS WHAT WE TEACH

When we teach, two important things happen, whether we like it or not. We teach the *content* of what is to be learned and we teach young people to *love* or to *hate* that learning. In other words we teach the knowledge, skills and understanding that are usually the prescribed focus of the curriculum *and, at the same time*, we teach students to form particular values and attitudes towards learning in school. The way we teach, what we do, how we are as people in the classroom and our own attitudes to learning all help to form in our students particular values, attitudes and dispositions towards themselves and learning, of which we are often unaware. Of course, these are sometimes negative towards school learning.

The forming of values, attitudes and dispositions is a central part of personal development. Personal development is an important part of the purpose of education and it includes the spiritual, moral, social and cultural development of students, the development of the dispositions and attitudes and values for citizenship, for enterprise and for the realisation of a person's full potential as a human being in the community.

The development of knowledge, skills, understanding *and* personal development always happen together. It is a profound mistake to treat them as though

Values: what really matters around here.

Attitudes: clusters of thoughts, feelings and beliefs about people, ideas and things.

Disposition: a tendency to behave in a certain way.

they are separate processes. No teacher is only a teacher of a subject – all teachers model and impart values, attitudes and beliefs through their relationships and through all they do. The person of the teacher as well as their professional 'know how' in the classroom both have an impact. A teacher's authenticity, integrity and orientation to learning and learners all influence the learning ecology, as well as the sorts of learning and teaching strategies he employs. The personal development of the teacher is as important, therefore, as the personal development of the learner.

BECOMING LEARNER CENTRED

Being 'knowledge centred' leads to a learning climate where transmission of knowledge, skills and understanding becomes the most important value, and learners and teachers are judged by how well they impart or acquire that

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knowledge. Being ‘child centred’ leads to a learning climate where the child’s experience is most important and learners and teachers are judged by how relevant the learning processes and outcomes are for the child. While both of these are necessary, focusing on one at the expense of the other is unhelpful. Being learner centred means that we recognise the importance of both the child *and* the knowledge, but the focus is on the *child as a learner* and the *process of learning*. When we integrate personal development and attainment we begin to harness learning power and we become ‘learner centred’ in our approach rather than ‘knowledge centred’ or ‘child centred’.

When we focus attention on the learner and learning and we combine this with what we know about teaching, school and classroom organisation that best promote the highest levels of motivation and achievement for all students, then we are being learner centred, according to research from McCombs in the USA (McCombs and Whisler, 1997).

Ecology for learning

An ecology for learning is a micro-climate where learners and learning are at the heart of all that happens. Teachers seek to create the best possible conditions for learning and growth.

Creating the optimum ecology for learning is a question of values. A value can be understood as ‘what really matters around here’ because that is what will actually shape practice. If it is not clear what really matters, or if what really matters to policy-makers is different to what really matters to teachers or learners, then the ecology suffers.

Learner centredness also relates to the beliefs, characteristics, dispositions, and practices of teachers – practices primarily created by the teacher. According to McCombs, when teachers derive their practices from a learner-centred

perspective, they:

- include learners in decisions about how and what they learn and how that learning is assessed
- value each learner’s unique perspective
- respect and accommodate individual differences in learners’ backgrounds, interests, abilities, and experiences
- treat learners as co-creators and partners in the teaching and learning process.

The personal qualities and skills of teachers really matter. It is as much about *who we are* and *how* we teach as *what* we teach.

THE DOUBLE HELIX OF LEARNING

A metaphor for learning power that some people find helpful is the double helix, at the heart of DNA, and therefore of life. A double helix has two strands which run parallel to each other and never meet, but are always held together.

Teaching for learning has two strands which always run together (represented in Figure 1.1). One of the strands is personal development and the

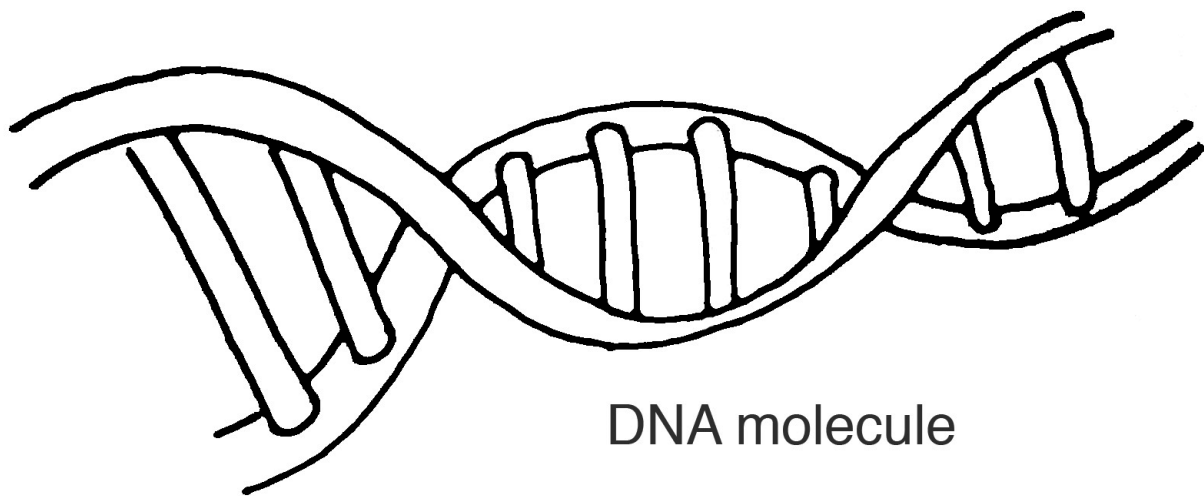


Figure 1.1 The double helix of learning

other strand is the knowledge, skills and understanding that we are attending to. The question is, what is it that holds these two strands together? We suggest that learning power is the energy that runs through the middle of the double helix of learning. The seven dimensions of learning power are what hold the two strands together as well keeping them distinct from each other.

LEARNING POWER: A DEFINITION

Learning power is a complex term, and one that does not lend itself to easy definitions. One way of explaining learning power is as:

A form of consciousness characterised by particular dispositions, values and attitudes, expressed through the story of our lives and through the relationships and connections we make with other people and our world.

To put it another way, learning power seems to be a form of awareness about oneself as a learner. It can be recognised in particular behaviours, beliefs and feelings about oneself and about learning. It finds expression in particular relationships, where trust, affirmation and challenge are present and it is 'storied' in the memories people bring to their learning and in their future hopes and aspirations.

It is a 'way of being' in the world, an orientation towards changing and learning over time, towards engaging with life and relationships in our personal lives and social and political communities. It is an essential element of learning throughout the lifespan, and it is a quality of *all* human beings, although the degree to which we are aware of our own learning power may vary significantly from person to person and in different contexts.

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Key ideas

Learning power:

- is a form of consciousness in all human beings
- exists within and between people
- runs through people's stories
- is about thinking, feeling, wanting and doing
- can be recognised in seven dimensions.

Some young people exhibit substantial learning power outside of school, for instance in:

- text messaging
- using the internet
- crime
- fashion
- music
- sport

but these youngsters may have switched off from school and rarely utilise those same capabilities in the classroom.

Other young people may be high achievers in school, but actually not be aware of how they learn or their own learning power. Such youngsters may often be quite fragile and isolated learners, dependent on their teachers to provide them with the information they need, suffering crises of

confidence after leaving school. Typically, these learners are predicted to get high grades in GCSEs or 'A' levels, but when they move on to adult learning contexts they really struggle.

Learning power is relevant to human growth and development in any context, not just schools. The notion of positive personal change over time is at the heart of much psychotherapy theory. Learning, adapting, changing and growing are central to successful enterprise and important for success in any profession. No one who has been in close contact with a tiny baby can doubt that the learning power that we are all endowed with – becoming aware of ourselves as learners, and taking responsibility for our learning and growth over time – is a profoundly important theme for all human beings.

Failing to learn or learning to fail?

Ben's small class of 'A' level biology students were all set to get A grades. Some of them had applied to study medicine at a university which had a problem-based approach to learning, in which they would first encounter real patients and their stories.

These students' learning profiles suggested that they were diligent and bright, but fragile, dependent and isolated learners. They discussed this with Ben and began to develop a language for learning. They realised that they needed to move away from depending on Ben to give them the information they needed to pass the exams and to take responsibility for their own learning journey.

Meanwhile, Ben began to give them the experience of what it feels like to fail, by setting problems which were too difficult or which had many possible answers. They began to develop resilience and team work, and their self-esteem began to be derived from their capacity to learn, rather than simply 'getting it right'.

THE SEVEN DIMENSIONS OF LEARNING POWER

The research evidence from the ELLI project suggests that there are seven dimensions of learning power that we can recognise and use as a framework for learning and assessment in many different contexts. These dimensions are *not just* about thinking, *not just* about feeling and *not just* about doing. They include all of these.

They are not the same as learning styles – or learning preferences. They go deeper than this and are qualities of human beings that form the necessary conditions for human growth and development.

They are important for all sorts of learning, both in school and out of school, for personal learning, growth and change, for healthy relationships and for the management and manipulation of knowledge and information for life in the twenty-first century. They are also highly relevant to citizenship in a healthy democracy.

The dimensions were derived from research into nearly 6,000 learners.⁴ While it is not the purpose of this book to go into the research evidence in any detail, some background about where these ideas have come from may be helpful. In the original research project that identified these seven dimensions, we included all that we knew, from existing research and from practice, that contributed to our knowledge of learning and of learning to learn. This included concepts such as:

- how learners attribute their success in learning
- learners' sense of self-esteem as learners
- important relationships for learning
- learning cultures
- feelings about learning
- learning in the classroom
- learning identity and story
- learning strategies, skills and dispositions.

The statistical processes applied to the data enabled us to distinguish some strong, recurring themes which we then identified as the seven dimensions of learning power.

Learning power is about how learners perceive themselves as learners, rather than how they are seen by others, or how particular external criteria are applied to learners' behaviour. In this sense, learning power is deeply *personal*, though, as we shall see, it is not *private*. What really matters in learning power is how the learner becomes aware of herself as a learner over time and how she can apply that awareness to life and learning.

INTRODUCING THE SEVEN DIMENSIONS OF LEARNING POWER

Table 1.1 introduces each of the seven dimensions of learning power with a brief explanation of what it means and the sorts of statements that might be thought, said or felt by someone who is strong in that dimension.

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Table 1.1 The seven dimensions of learning power.

| Dimensions of learning power | What this dimension means | What I think and feel and do in this dimension |
|-------------------------------------|---|---|
| Changing and Learning | A sense of changing and growing as a learner | <ul style="list-style-type: none"> • I know that learning is learnable • I know that my mind can get bigger and stronger just as my body can • I feel good about my capacity to learn • I expect to change as time goes by • I celebrate my learning |
| Critical Curiosity | An inclination to ask questions, get below the surface of things and come to my own conclusions | <ul style="list-style-type: none"> • I want to delve deeper and to find out what is going on • I don't accept things at face value • I want to know how, why, what and where • I don't accept information without questioning it for myself • I enjoy finding things out |
| Meaning Making | Making learning personally meaningful by making connections between what is learned and what is already known | <ul style="list-style-type: none"> • I like to fit new bits of information together with things I already know • I like to make connections between subjects • I love learning about what really matters to me • I draw on my own story in my learning as well as the stories of my community • I learn at home, in my community and at school |
| Creativity | Risk taking, playfulness, lateral thinking and using imagination and intuition in learning | <ul style="list-style-type: none"> • I like to play with ideas and possibilities • I trust my intuition and follow my hunches • I use my imagination in learning • I like to be challenged and stretched |
| Learning Relationships | The ability to learn with and from other people and to learn on my own | <ul style="list-style-type: none"> • I like sharing my thoughts and ideas with people • I like learning on my own as well • I learn from adults and people at home • I like learning with and from other people • I know how to help others learn |

Table 1.1 (Continued)

| Dimensions of learning power | What this dimension means | What I think and feel and do in this dimension |
|------------------------------|--|--|
| Strategic Awareness | Being aware and actively managing my own learning feelings, processes and strategies | <ul style="list-style-type: none"> • I know how I learn • I can manage my feelings of learning • I plan my learning carefully • I think about thinking and learning • I am aware of myself as a learner – I know what I like and dislike • I can estimate how long tasks will take |
| Resilience | The tenacity to persist in the face of confusion, not knowing and failure | <ul style="list-style-type: none"> • I know that making mistakes is a natural part of learning • I am not afraid of having a go • I tend to keep going at a task until it is completed • I don't fall apart when I fail • I keep going at my own pace – I know I will get there in the end • I know that struggling is an important part of learning |

These dimensions of learning power are introduced as positive dimensions that support learning. In fact the research suggests that each of these learning power dimensions has an opposite. We call these the *emergent* pole which tends to be positive for learning and the *contrast* pole which tends to inhibit learning. Each pole sits at the opposite ends of a spectrum. For example, '*changing and learning*' is an emergent pole of this dimension and '*being stuck and static*' is the contrast pole. Where learners are on the spectrum of changing and learning depends on how 'much' they see themselves as changing and learning at any one time and in any one place.

REFLECTION: LEARNING POWER DIMENSIONS IN MORE DEPTH

These descriptions of the learning power dimensions will give you more detail. They are carefully worded by researchers to be as faithful as possible to the ideas that emerged from the data. Read them slowly and mull them over. The contrast pole for each dimension is also included here.

Changing and Learning

Effective learners know that learning itself is learnable. They believe that, through effort, their minds can get bigger and stronger, just as their bodies can and they have energy to learn. They see learning as a lifelong process and gain pleasure and self-esteem from expanding their ability to learn. Having to try is experienced positively: it's when you are trying that your 'learning muscles' are

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being exercised. Changing and learning includes a sense of getting better at learning over time and of growing and changing and adapting as a learner in the whole of life. There is a sense of history, hope and aspiration.

... and at the opposite end of the spectrum:

Being static or stuck: *less effective learners tend to believe that learning power is fixed and therefore experience difficulty negatively, as revealing their limitations. They are less likely to see challenging situations as opportunities to become a better learner. Their feeling of self-efficacy is weak.*

Critical curiosity

Effective learners have the energy and desire to find things out. They like to get below the surface of things and try to find out what is going on. They value 'getting at the truth' and are more likely to adopt 'deep' rather than 'surface' learning strategies. They are less likely to accept what they are told uncritically, enjoy asking questions and are more willing to reveal their questions and uncertainties in public. They like to come to their own conclusions about things and are inclined to see knowledge, at least in part, as a product of human inquiry. They take ownership of their own learning and enjoy a challenge.

...and at the opposite end of the spectrum:

Passivity: *passive learners are more likely to accept what they are told uncritically and to believe that 'received wisdom' is necessarily true. They are less thoughtful and less likely to engage spontaneously in active speculation and exploratory discussion.*

Meaning Making

Effective learners are on the lookout for links between what they are learning and what they already know. They get pleasure from seeing how things 'fit together'. They like it when they can make sense of new things in terms of their own experience and when they can see how learning relates to their own concerns. Their questions reflect this orientation towards coherence. They are interested in the big picture and how the new learning fits within it. They learn well because their learning really matters and makes sense to them.

... and at the opposite end of the spectrum:

Fragmentation: *less effective learners are more likely to approach learning situations piecemeal and to respond to them on their own individual merits. They keep information stored in separate silos in their brains. They may be more interested in knowing the criteria for successful performance than in looking for joined-up meanings and associations.*

Creativity

Effective learners are able to look at things in different ways and to imagine new possibilities. They enjoy lateral thinking, playing with ideas and taking

different perspectives, even when they don't quite know where their trains of thought are leading. They are more receptive to hunches and inklings that bubble up into their minds and make more use of imagination, visual imagery and pictures and diagrams in their learning. They understand that learning often needs playfulness as well as purposeful, systematic thinking.

...and at the opposite end of the spectrum:

Rule-boundedness: *less effective learners tend to be unimaginative. They prefer clear-cut information and tried-and-tested ways of approaching things and they feel safer when they know how they are meant to proceed. They function well in routine problem solving with clear-cut answers, but are more at sea when originality is required.*

● Learning relationships – interdependence

Effective learners are good at managing the balance between being sociable and being private in their learning. They are not completely independent, nor are they dependent. They like to learn with and from others and to share their difficulties, when it is appropriate. They acknowledge that there are important other people in their lives who help them learn, though they may vary in who those people are, e.g. family, friends or teachers. They know the value of learning by watching and emulating other people, including their peers. They make use of others as resources, as partners and as sources of emotional support. They also know that effective learning may also require times of studying, enquiring and even 'dreaming' on their own.

... and at the opposite end of the spectrum:

Isolation or dependence: *less effective learners are more likely to be stuck either in their over-dependency on others for reassurance or guidance, or in their lack of engagement with other people.*

● Strategic Awareness

More effective learners know more about their own learning. They are interested in becoming more knowledgeable and more aware of themselves as learners. They like trying out different approaches to learning to see what happens. They are more reflective and better at self-evaluation. They are better at judging how much time, or what resources, a learning task will require. They are more able to talk about learning and about themselves as learners. They know how to repair their own emotional mood when they get frustrated or disappointed. They like being given responsibility for planning and organising their own learning.

... and at the opposite end of the spectrum:

Behaving like a robot: *less effective learners are less self-aware and are more likely to confuse self-awareness with self-consciousness. They are less likely to be able to explain the reasons for the ways they choose to go about things. They don't tend to reflect on their own processes and experiences in such a way as to 'name them' and learn from them. They might plunge into a task with little planning or forethought.*

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Resilience

Effective learners like a challenge and are willing to ‘give it a go’ even when the outcome and the way to proceed are uncertain. They accept that learning is sometimes hard for everyone and are not frightened of finding things difficult. They have a high level of ‘stickability’ and can readily overcome feelings of frustration and impatience. They are able to ‘hang in’ with learning even though they may, for a while, feel confused or even anxious. They don’t mind making mistakes every so often and can learn from them.

... and at the opposite end of the spectrum:

Resilience

Encouraging resilience means helping learners to get better at all of the other learning power dimensions.

- Helping them to see that they can change and grow and be curious, creative and make meaning.
- Supporting their strategic awareness and developing learning relationships.

Dependence and fragility: *dependent and fragile learners more easily go to pieces when they get stuck or make mistakes. They are risk averse. Their ability to persevere is weak and they seek and prefer less challenging situations. They are dependent upon other people and external structures for their learning and for their sense of self-esteem. They are passive receivers of knowledge, rather than active agents of their own learning, constructing meaning from their experience.*

The research showed that in the first six dimensions the positive poles were the emergent ones and the contrast poles were negative. However, this was the other way round in the seventh dimension. The emergent pole was dependence and fragility and this was shown to be the opposite and counterbalance of the others. From the data, therefore, we can tell that people who have high levels of dependence and fragility tend to report lower levels of the other dimensions. So someone who is a **fragile** and **dependent** learner tends also to be **passive**, **static**,

rule-bound and **fragmented** in their thinking. They may be either **dependent** in their learning relationships or **isolated**, and generally they **lack strategic awareness**.

When we work with these dimensions in the classroom and elsewhere we focus on the positive and name resilience as the seventh dimension. Resilience itself needs a focus. When we are encouraging resilience in learners we are encouraging them to be resilient in building themselves up on all the other dimensions.

MORE ABOUT THE LEARNING POWER DIMENSIONS

All of the learning power dimensions are related to each other. They should be treated as all part of the same thing. What is important is a learner’s profile on all of these dimensions as a whole.

Learning power is not the same as attainment although there is generally a positive relationship between the two. An important distinction is that someone can succeed well in school but still be a poor learner. In our research we have found learners who are high achievers – but are also very fragile and dependent. They have typically been successful in learning where they are provided with all the data they need, which they can process easily. They have not met very much failure or learned how to make mistakes. Sometimes when these learners find themselves in situations where the answers are not obvious, or where they are required to think for themselves for the first time, they fall apart.

Their self-esteem as learners is derived from the external successes rather than from an internal confidence in their own learning power.

WHAT WE KNOW SO FAR ABOUT HOW LEARNING POWER OPERATES

There are many other aspects of learning power that we can identify from our research. Here are a few examples:

- Girls tend to have higher levels of creativity and learning relationships than boys, who in turn tend to have higher levels of resilience and strategic awareness.

You may find girls are less likely to keep trying and are more inclined towards tasks requiring communication and imagination whereas boys are more likely to be 'up front' with what they want and to figure out more how to get their needs met, even in negative ways!

- Schools and classrooms vary in the amount of learning power reported by students.

Learning power for students depends a lot on the quality of relationships in the classroom, the climate of the school and the teacher's learner-centred practices. These vary from classroom to classroom and school to school. This is where school self-evaluation and improvement really counts.

- Students tend to report significantly less learning power as they get older – with the greatest decline occurring in the early years of secondary school (see Chapter 8).

The sobering facts seem to be that the average learning power score for students in Key Stage 4 is significantly lower than for those in Key Stage 3 and this is lower than for those in Key Stage 2. Something about how we are organising schooling and learning does not seem to be producing more effective lifelong learners as students go through school. Although the onset of adolescence may be part of the explanation, it does not seem likely to account for this significant reduction in learning power over the five compulsory years of secondary education. This could be a major design fault in the curriculum.

- Different ethnic and religious groups report different levels of learning – some communities are more oriented towards learning relationships than others.

Where students belong to families within strong communities and values then they report themselves to have more positive learning relationships. Students' cultures and values are important learning tools – don't make them leave them at the door of the classroom.

- We suspect, too, that individuals will tend to have a basically stable shape to their learning profile, but that its strength may vary according to what they are doing and where they are at the time of assessment.

For example, if Daniel loves science and his science teacher, but hates art and dislikes his art teacher, then he will probably report lower levels of learning power in art.

- Some dimensions of learning power can predict attainment.

The more learning power students report, the more likely they are to be higher attainers, to like their teachers and to feel emotionally 'safe' in class. Furthermore, high scores in changing and learning and meaning making actually predict attainment.

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- Creativity is negatively associated with attainment in maths, English and science in the National Curriculum.

The same research showed that higher levels of creativity actually predict lower attainment by National Curriculum measures. Another design fault, it seems, in our national assessment framework.

In the next chapter we will meet some individuals and explore their learning power profiles. Meanwhile, research into learning power continues and includes researchers, teachers and students themselves. What we describe here is just the beginning of a learning journey.

Summary

In this chapter we have:

- introduced the idea of learning power and made use of the metaphor of the 'double helix of learning'
- identified learning power as a 'form of consciousness' in all human beings, recognised in particular values, attitudes and dispositions
- found that attending to learning power in schools 're-balances' the tension between academic attainment and personal development and enables us to create a learner-centred school climate
- explored seven dimensions of learning power that emerged from the research, describing them in some detail as well as the relationships between them
- understood that learning power is not a single entity, but more like a form of human energy that manifests in different ways, at different times and in different contexts.

These concepts are fundamental to an understanding of the rest of the book because the success of any application of these ideas is in direct proportion to how well they are 'owned' and 'internalised' by teachers and learners. Some of the most powerful and creative applications of these ideas have arisen where learners and their teachers actually take ownership of them and apply them creatively to their own situations.



NOTES AND FURTHER READING

1. Before the ELLI project began Guy Claxton extensively developed the ideas around learning power for schools. For further reading around these ideas, see:
Claxton, G. (2002) *Building Learning Power: Helping Young People Become Better Learners*. Bristol: TLO.
And also:
McCombs, B. and Whisler, J. S. (1997) *The Learner Centered Classroom and School: Strategies for Increasing Student Motivation and Achievement*. San Francisco, CA: Jossey Bass.
2. For a more academic read about the 'ecology of learning', see a paper reporting on the ELLI project written by Deakin Crick, McCombs *et al.* (2006), referenced in the bibliography at the back of the book.
3. For more on this, see:
Harlen, W. and Deakin Crick, R. (2003b) 'Testing and Motivation for Learning', *Assessment for Education*, 10(2), 169–208.
Harlen, W. and Deakin Crick, R. (2003a) 'A systematic review of the impact of summative assessment and testing on pupils' motivation for learning', in *Research Evidence in Education Library*. London: Evidence for Policy and Practice Information and Co-ordinating Centre, Department for Education and Skills.
Assessment Reform Group (2002) *Testing, Motivation and Learning*. Cambridge: Assessment Reform Group.
4. Deakin Crick, R., Broadfoot, P. and Claxton, G. (2004) 'Developing an Effective Lifelong Learning Inventory: The ELLI Project', *Assessment for Education*, 11(3), 247–72.