We have reached a point where we can take a breath, turn back and survey where we have travelled. Starting from one school we expanded outwards to view the collective material reality of all the schools of the world; then we contracted into the school itself and explored how its classrooms, furniture and equipment have changed over the last two centuries. Next, we jumped from the outer material world of the school into the individual material world of a child, using a micro switchover point of desk and learner, and investigated the smallest functioning units of learning (working memory). We then shifted to the inner depths of a student and explored the possible levels of development for which a student could reach. After outlining this interior world of an individual student we turned to how we learn collectively as a species, using the work of Piaget and Spencer to track across from individual to species learning. We finally went into the intricacies of constructing knowledge in pedagogically worthwhile ways, starting with the combination of basic elements and expanding outwards until we reached a point where it has become possible to access pedagogically most of the knowledge of the world at almost any time and in almost any space with a small device held in the hand, and now playing straight across our retinas through glasses.

Two organising activities guided this process of exercising our educational imaginations: climbing and jumping. I continually asked myself and you what the smallest educational units were and then expanded them outwards and upwards until the largest and highest units were reached. At the same time, I persistently shifted between different educational landscapes, jumping from the bricks and mortar of schools into brains and minds, interior depths, human
species, knowledge forms, computer programs and virtual worlds. By working with dramatic scale, centuries of time and shifting panoramas (but always keeping an educational focus), the educational imagination starts to break out of its locatedness and begins to wonder.

The nature of climbing changed with the type of landscape. The material world works with expansion in scale and the logic of parts and wholes. This is very different from the functioning of material brains, the expansion of the interior world of the mind, and the development of species knowledge. The development of pedagogically structured knowledge happens in ways different from the material growth of schools; and the internal development of an individual is both related to and different from the collective development of our species.

The divisions causing the jumps are not easy to combine analytically and have been dramatised rather than theorised in this book. Inside/outside, one/many, virtual/actual, simple/complex, particular/general, old/new, concrete/abstract, body/mind, individual/collective, part/whole, micro/macro, homogenous/heterogenous (the list could go on) – all have massive debates on their own. The intention of this book was not to specialise in debates around the intersection of brain/mind, inside/outside and individual/collective, but to develop your educational imaginations. At the same time a basic structure for the complex field of education studies was provided to make sense of the working of education in all its complex glory.

So if we step back from the flow of the book, what can we say about the operating principles of the educational imagination and the basic structure of education studies?

The first point is to recognise the necessity of working with scales, much as musicians do, running up and down the notes, making sure that each is distinct but also located in a range. If it’s a spatial focus in education then try to locate the smallest and largest elements and all the levels in between. If it’s time then work from earliest to what is most recent and upcoming; if it’s complexity move from simplest to most complex; if it’s moral development start with what is most elementary and move to what is most profound; and if it’s intellectual development begin with the most basic of links and reach for the most subtle and delicate of abstractions. One of the reasons why intellectuals like Plato, Aristotle, Dante, Hegel, Spencer, Piaget, Kohlberg, Maslow, Bronfenbrenner, Gagné and Bernstein are celebrated is because they have charted paths that move across astonishing distances in ways that show us how to walk the same path. Plato took us from the dark cave of everyday experience into the light of abstraction. Aristotle showed us how to classify all of existence from its most general categories to its most specific. Dante took us all the way from the depths of hell to the heights of heaven. Hegel opened out the dialectical development of full consciousness by taking us on a journey through the history of Western philosophy. Spencer opened out the development of existence from homogeneity
to heterogeneity. Piaget told the story of our individual development from sensorimotor perception to formal operational thinking and then folded this into the development of species knowledge. Kohlberg revealed the moral dimensions of a similar journey. Maslow opened out the full potential of development within us from physiological needs to transcendence. Bronfenbrenner showed us how to travel from micro, through meso, to macro and chrono. Gagné worked through the steps travelled to make a skill understandable and do-able. And Bernstein opened out the full range an educational message travels from its esoteric formulation in the sacred heights to its pedagogic articulation and assessment in the practicalities of classroom life.

There is much to dispute over the accuracy and legitimacy of these accounts and the engagement with the truth-values of the different types of journeys cannot be ignored. But the reason why someone like Dante is celebrated, even though his medieval poem now reads like a wild rant on acid, is because of the sheer reach of the verse, able to express poetically the experience of travelling to the darkest depths of depravity, through the disciplines of purgatory and into the heights of the sacred, recounted step by step, circle by circle, level by level. Something of this flavour pervades the book (I hope). But even with Dante’s enormous capacity, he draws a boundary around what he does and then sticks to it, carefully, rigorously and timeously. The journey from hell through purgatory to heaven takes three days, each sub-journey told in 33 cantos (with an extra introduction for the Inferno), each line of the canto following a set logic of rhyme and meter. There is a bottom point, where the lowest level of hell is reached. This has to be identified, described, swung through so that the climb upwards can begin. Just so for the end point in the highest of high heavens, clearly delineated so that the journey can end.

The educational imagination has also to work with these logics. There is a point where what is education stops and something else takes over and this is often one of the most difficult lines to identify, because interlinked and meshed processes are being looked at. This is why we started the book with a boundary that was easy to see – that of a physical school. With the shift to an individual student, the boundaries become far harder to identify, the line between what is neurological and educational being exceptionally hard to chart as we saw in chapter 3, but it is important to try to locate it, otherwise one travels into fascinating regions outside the ambit of education and increasingly less relevant to its concerns. A similar problem is reached with the shift from individual to species, and from what is inside an individual to what is outside, where issues of biology, language, culture, family, state and economic development all come into play. This book does not pretend to theorise these boundary lines, or negotiate how different types of boundaries intersect, overlap and laminate. What it tries to do is show what happens when there is a driving concern to stay within the educational, but push it to its limits.
The second point to note is that the key driver of the educational imagination, rather than a poetic, social or divine imagination, is reflective abstraction. When I read Piaget I am blown away by the imaginative reach of the man, but what stays with me is his precise articulation of what reflective abstraction is and then his demonstration of how it plays out, both in the intellectual development of an individual and the collective knowledge of the species. It irks me when I encounter summary after summary of his stages in educational textbooks without due accord given to his profound articulation of the driving mechanism behind the educational imagination. It is in the struggle of reflective abstraction to expand the reach of the possible as it comes closer and closer towards the fullness of reality that we have the educational equivalent to Dante’s Divine Comedy. Reflective abstraction reduces the gap between the possible and the necessary by increasing the range and sophistication of the possible, enabling it to get closer and closer to the fullness of reality; and it is education’s role to induct us into the realm of how the possible gets closer to the actual through knowledge, all the while recognising just how massively beautiful the actual is. Boundaries of the Educational Imagination does this by stretching the possible out to its largest, highest, furthest reaches so that it gets close to full taste of real education in all its magnitude and richness.

As you practise the scales of education, a discriminatory ability develops that identifies different domains within a broad area. We saw this with Piaget and his levels of intellectual development, where Demetriou pointed to different streams of reasoning going on inside the broader field of intellectual development such as categorical, quantitative, spatial, causal, social and verbal. Being able to recognise domains is a little like becoming increasingly able to play chords as scales, where four of five notes are all struck at the same time, each separate, but part of the same structure. In effect what you try to develop is an ability to travel through levels while attending to different streams that run through the levels in distinctive ways, sometimes harmonising, sometimes conflicting as in figure 7.1.

As your educational imagination strengthens, you can begin to attend to the dissimilarities between different types of movement through levels. For example, as one shifts from micro to macro what happens is that space grows bigger and bigger. But what happens to space when one shifts from concrete to abstract? The concrete particular is located in space, but as one shifts into increasingly abstract formulations, the nature of location in space moves to some weird other non-concrete conceptual space. The way you work with levels that go from micro to macro is very different from the way you work with levels that go from concrete to abstract. The same can be said for going from part to whole, simple to complex, the particular to the general, everyday to the specialised and the homogenous to the heterogeneous.

Each of these processes works with levels, but in very different ways. To be frank, when I started writing this book it was with the intention of making explicit how these different types of level intersect with each other, and how each
has many varieties contained within them, but I quickly realised that another book needed to be written before this articulation was possible. I did not want to kill off my own attempt to stimulate the educational imagination by providing too heavy a meal, so this book attempted a lighter path that settled on taking a journey through the different types of levels and showing how the educational imagination plays with them. A later book I am in the process of conceptualising – *Advanced Educational Analysis* – will not step back from the struggle to fully articulate these processes with more rigour and weight.

*Figure 7.1 Spreading pattern of hierarchical development*

*Boundaries of the Educational Imagination* did not only play with scales, it also worked with juxtapositions: an old slate tablet with an iPad; old school chairs and desks with new school chairs and desks; paper fibres with brain fibres; and Carter High School in comparison to Mpande High School. When the imagination works with juxtapositions, the first thing it does is get the two input spaces into some kind of equivalence and then look for connections between them.

This particular function of the educational imagination develops as one stays within particular levels of focus and travels around a bit. With the tablet example, one of the oldest elements within the materiality of learning was juxtaposed with the most recent. Centuries were jumped over while keeping constant what it is students hold in their hands. If you are interested in developing this particular aspect of the educational imagination in more detail, my edited book *Conceptual Integration and Educational Analysis* (HSRC Press, 2015) will provide detailed examples of how to do it along with its operating principles.
If levels above and below the current level of focus provide a clear training ground for stretching the educational imagination, and juxtapositions from the travels provide a startling richness, then it is in working with combinations of variables that the educational imagination develops an ability to work with variation. The hard work needed at this point is practice at the possible combinations, running them through the imagination: what happens if I combine this variable with that variable and then add this one in this way? How does it differ from combining the variables in a different way? Our educational imaginations are often entranced by one picture of good education, and then become entrapped, especially if the picture is called something that has an imaginative ring to it. The entrapment works when the picture itself is the name for a creative and imaginative process, so we imagine that by insisting on its implementation across the world we are furthering creativity and imagination everywhere we go. By insisting on one way of teaching, like progressivism or learner-centred education, we feel that we are enriching the whole educational world when what we are actually doing is repeating one stuck move over and over again. The educational imagination has to be able to work with all the possible varieties of education, different types of curriculum, pedagogy and assessment, and with various types of relationship between teachers and students. If you are interested in developing this particular aspect of the educational imagination in more detail, then read the sister work to this book, *Cracking the Code to Educational Analysis* (2013).29

*Cracking the Code* teaches the educational imagination to work with variation; *Boundaries of the Educational Imagination* teaches the educational imagination to travel through levels; *Conceptual Integration* teaches the educational imagination how to juxtapose and blend different elements within these travels. Combined, these three books provide the elementary practices of a combinatorial matrix, playing of scales and juxtaposition; enabling travelling through the depths, heights and abundance of education, and always paying attention to where it starts and ends.

I have pointed out two uses of this book: first to develop the educational imagination; and second to provide an underlying structure by which the complex world of education opened out for study. This book is a primer for education studies. In no way is it meant to replace the complex dynamics of education studies that involves a combination of history, sociology, psychology, philosophy, economics, linguistics, geography and politics.

The combination of different disciplines makes education studies one of the most exciting of fields because all of the human sciences are relevant to it. Education studies provides you with a licence to explore the whole world precisely because education is intimately wrapped up in what it is to be human. This dynamic is what brought me out of my own intellectual slumber at university. Education studies presented me with an opportunity to explore the full range of the human sciences with the proviso that it held educational relevance. It still excites me. We have failed miserably to live up to this tradition in our current textbooks on education studies.
It is, and should be, one of the most exciting areas of study that exposes students to the beauty and tragedy of education. The problem for a beginner student, and even for lecturers in the field, is that the complexity results in enormous confusion around what actually to do in the subject. How do you cover history of education, sociology of education, psychology of education, philosophy of education, economics of education, politics of education, geography of education and linguistics of education while trying to get students to understand how pedagogy, curriculum, assessment and policy operate in conditions of inequality?

This book does not attempt to do the above, but what it does do is provide a primer to education studies by simplifying the complexity through two distinctions – collective/individual and material/interior; and one rule – climb through the respective levels until they lose educational relevance.

Let’s start with the basic distinction between individual and collective. Crudely put, studies that focus on the individual dimension are psychological and studies that focus on the collective dimension are sociological (figure 7.2).

Interrogations of how this distinction actually works and whether it is valid partly make up the field of philosophy. What does it mean to be an individual; to be a part of a collective; does the collective not produce individuals; are collectives not actually made up of individuals? What is the nature of a boundary? Questioning the nature of the concepts and the validity of the distinctions is the work of philosophy of education (figure 7.3).
The issue with psychology of education is that part of it focuses on the development of our interior and another on the functioning of our bodies, especially our brain. We have internal accounts of the development of our minds and external accounts of how our bodies are stimulus response mechanisms (Pavlov and Skinner), or how our brains function neurologically (figure 7.4).

The key point is not to get stuck in an either/or mentality where you write off studies on the body or brain of a student because they are too positivist or behaviourist. There are issues to do with overly simplistic behaviourist accounts, but that should force you to look for better accounts of material individuality rather than replace it with more interior, interpretive, qualitative accounts. Stay within a quadrant and look for more up-to-date accounts that push beyond Pavlov and Skinner for example. Don’t simplistically dismiss Skinner and behaviourism and replace him with Piaget and Vygotsky. You risk leaving out a whole quadrant by writing off its early or crude versions.

A similar set of distinctions and patterns holds for sociology, with more material accounts emphasising tangible collective inequalities that can be seen (black and white, male and female, rich and poor) and more interior accounts emphasising how language, culture and meaning work at an interior collective dimension (figure 7.5). Material differences take us into the world of economic and geographic inequality. Symbolic differences take us into the world of cultural capital, more symbolic types of violence and restricted and elaborated linguistic codes.

Figure 7.4 Individual domain can be divided into interior and material sections
Of late, with the massive rise to popularity of post-modernism there has been a strong focus on symbolic meaning, often at the cost of material inequalities and realities. What you have to watch out for are radical positions that explain everything in education through a single domain. This is surprisingly common, with some arguing that our learning is basically explained by how the brain works. Others argue that education only makes sense when put in the context of class struggle, or that it is the mind of an individual learner that constructs all of reality; while some point to social interaction as providing the secret key to understanding education.

We can visually catch these dreams of omnipotence in figures 7.6 to 7.9.

Just as bad are trite forms of integral holism where everything counts and you can get away with an ‘it’s complex’ line, where as many factors as possible are thrown together into a mushy, sloppy soup. There is real hard work in deducing how the brain and mind interact, social and psychological factors inter-relate, and social structure and social meaning interdepend; how the outside becomes the inside, and the inside the outside. These are some of the hardest questions that currently face us. Piaget was one of the most gifted polymaths of the twentieth century who spent decades attempting to master the human and natural sciences to understand how we learn, working between individual and collective forms of learning knowledge,
and between our physical and interior adaptation mechanisms. All of it was a mystery to him and certainly a simple four quadrants with a climbing mechanism inside each would not have solved any of his problems.

But we all have to start somewhere, so I have written this book as a start-up. There is merit in trying to make a starting point as simple as possible while still getting at the essential structure and that is what I tried to do by making two elementary distinctions and then travelling around in the spaces they produced. I did not interrogate the nature of the distinctions, the difficulties of boundary crossings, or the way the spaces are intimately tied up with each other. I don’t want to leave
you with an oversimplified comment that all the quadrants work together in a complex way, or that they give you everything you need to imagine the varieties of educational experience. This book is a primer. It prepares the surface for the study of education and puts in place a small amount of dynamite so that the main explosive event can happen. It is a first book of elementary distinctions that enables the educational imagination to begin its travels. It is written for someone interested in the way the study of education works. It provides two simple distinctions between individual/collective and material/interior to make sense of it all; and a basic rule that helps an education student to climb through its basic levels and not get lost by travelling too far into the worlds of psychology, sociology, philosophy, economics, linguistics, geography, politics and other human sciences.

Figure 7.8 Physical body/brain explanation dominates

Figure 7.9 Individual mind explanation dominates
This forces a half apology from me. Although *Boundaries of the Educational Imagination* stands in its own right as an introductory primer to the educational imagination, it is best used with *Cracking the Code* and *Conceptual Integration*. Here comes the other half of the apology. In no way do these three texts and the practices contained in them provide the educational imagination with everything it needs to function. A playing of educational scales, a combinatorial matrix of education variables and the metaphoric combination of different inputs do amazing things for the development of an educational imagination, but none provide an ethical heartland that gives the grounding principles behind why we educate and are so passionate about it. A full educational imagination is able to do more than recognise different possible variations of educational experience, walk through its assorted levels and conceptually blend different inputs. It is able to negotiate the ethical principles that sit behind matrices and levels and light them up from a deep backdrop. More than this, it should be able to imagine how different ethical principles operate in different ways and politically negotiate a path through them depending on the situation at hand. But that is to anticipate *The Good Fight*, to which I now turn.