Becoming Mobius

The complex
matter of education

Dr Debra Kidd

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To my boys.
For letting me roam and then pulling me home.
For always making me feel like I matter.
For making me laugh and making me proud.
I love you all very much.

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Chapter 1

A MATTER OF THE MIDDLE: INTRA-DUCTION

Intra-duction
In.tra – prefix *within; inside*
In.tro – prefix *in, into or inward*

Oxford English Dictionary

But Mousie, thou art no thy lane,
In proving foresight may be vain;
The best-laid schemes o' mice an' men
Gang aft a-gley,
An' lea'e us nought but grief an' pain
For promis'd joy!

Robert Burns, 'To a Mouse' (1785)

Little of what follows is what I thought it would be. There were times when I sat with head in hands, bemoaning the plans that 'gang aft a-gley'. Times when, like St Pierre, I found myself 'stopped, stuck – dead in the water',[1] not noticing at first the nibbling nudges at the edges of consciousness attempting to tell me that all was not lost, that the outcomes were simply 'other'. It was in the process of learning to allow those nudges/gut feelings to find their ways into thoughts, or to lie fallow until another experience pinged them into a resonant life, that this thinking would really begin to take form. I had intended to write about children's

experiences of learning, and then I became lost in methodology, and gradually the two fused in a complex intra-relay between theory, practice, self and other.[2] All experience mattered. All experience became matter. It has been a messy, sticky process. It is still messy, still sticky, still half-formed and half-emerging. What follows is not a completed act, but a point in time – an intra-duction.

An intra is, of course, a 'middle' and not a beginning, and in many ways this book is a series of mid-points or conjunctions, inspired mostly by the work of Gilles Deleuze and Felix Guattari. They conceptualise experience as rhizomatic – think of a strawberry plant or grass. The rhizome is always in the middle, in places where affects, ideas, assemblages converge and become other: 'The middle is by no means an average: on the contrary, it is where things pick up speed … a stream without beginning or end that undermines its banks and picks up speed in the middle.'[3] Both men challenge the traditional modes of thought that life and ideas are arboreal (tree-like), that thoughts and experiences follow a linear progression from root to fruit. Instead, they argue that human life is not tree-like, but a much more messy tangle of rhizomatic root structures, complexly and unpredictably connected. They conceptualise time as similarly complex – not linear at all, but a mishmash of pasts, presents and imagined or possible futures pressing in on moments and decisions and actions.

Deleuze separates out the functions of time into two types – aion and chronos (more on these later). Inspired by this, my work is nothing less, or more significant, than a selection of story-streams, which oscillate in aion time in which pasts press upon and fragment the present in arcs towards potential futures.[4] The fracturing nature of time, as explored by Deleuze, has created a fractal element to the work, and therefore there are leaps and lines of flight which are deliberately enmeshed and which may confuse or tax the reader. They are connected by resonance, by theory and by concepts that have emerged from my lived experiences of working with children. The writing leaps about, connecting ideas in a way that is not entirely linear, although, of course, you are more than likely to read this in a linear way. But thoughts and resonances have been left largely where they occurred and, to that end, this is a piece of writing that, instead of a road, is more of a plateau. Dahlberg and Moss describe working in plateau as:

a continuous, self-vibrating region of intensities whose development reactivated or between which a number of connecting routes could exist. This avoids any idea of moving towards a culminating point or external end – the antithesis of the dominant discourses in today's … education with their fixation on predetermined and sequential outcomes. Instead we are always inbetween, with many possibilities open to us.[5]

The plateau is a useful geographical term here. It represents both a physical flattening and a flattening of time – a place which has been formed by geophysical pressure, but one from which there is a flattened view. From a distance it looks like a uniform and simple structure; close up, there are folds and layers of complexity.

We can stand in/on a plateau and follow the markings and lines that have formed this place – an assemblage. Each plateau (or chapter) in the text represents a 'line of flight' with none dependent on or entirely detached from the others.[6] There is no 'finale' in this text, no chronology. It is my attempt to write as an assemblage, and one that deliberately disrupts. There is, nevertheless, content (education) and there are participants (teachers, researchers, an AST and children) and, inevitably,

issues relating to power and justice emerge throughout. By working in this way, I hope to add to and develop ways of working with and through multiplicity in educational settings, but always with a sense of social justice in mind and heart.

As teachers, we often bemoan the role of ideology in education. But we all have an ideology. Our values and beliefs as practitioners are always enacted in classrooms. Often this is done subconsciously – we re-enact the education we value, which is often that which worked for us. It is far more helpful, however, to step back and consider who you want to be and what you want to stand for. This can involve reading. It certainly involves reflecting on what you see, feel and experience. It demands that you find resonance, connections; that you try to make sense. For me, that resonance came through Deleuze. But what matters is that you seek to understand why it is *you* do what you do. And that you keep on looking – because first conclusions are rarely the only ones you might draw. Life thrives in multiplicity. And there is always another possibility – or, indeed, many possibilities.

In attempting to let go of the structure of this text, I attempted to reflect the complex nature of teaching, learning, researching and, indeed, of living. I found that Deleuzian frames allowed me to explore complexity anew. Part way through my doctoral study, I returned to classroom teaching from higher education, and then I left it again. In many ways, this work charts a series of returns as I attempt to explore how the past sits within our present; how returns and differences can help us to make anew; how, ultimately, complexity can be navigated (and embraced) without becoming overwhelmingly complicated. It is my contention that while many teachers recognise the complex nature of teaching, the desire to conform, perform and survive, and to push forward binaries, leads some to reject the complex and reach for the simple.[7] Instead, I argue that by engaging with complexity in a playful manner, we can finds modes of resistance which allow us to 'become-Mobius' – to exist in the between spaces of one AND another in order not only to survive but also to thrive.

As I move among my stories – not in forward motion, but in loops and returns – I explore and play with surfaces, rhizomes and middles instead of beginnings, endings and roots. In line with the philosophies

of Deleuze and Guattari, this book is predominantly preoccupied with notions of immanence taken from the Latin intra (to remain within) and becoming (moving outwards). Deleuze and Guattari describe the plane of immanence as 'a single wave that rolls [concepts] up and then unrolls them',[8] and it is here, in this rolling and unrolling, that I have found myself working.

For Deleuze and Guattari, there is no attempt to signify: 'writing has nothing to do with signifying. It has to do with surveying, mapping, even realms that are yet to come.'[9] And so this is an attempt to map – to write into being – an educational landscape without attempting to consciously shape or conclude. Yet, inevitably, shapes will be perceived and conclusions drawn. This tension between resisting certainty and stating beliefs is simply something that has to be lived with. It is not a contradiction but an intra-action, and the work will be unsettling to anyone seeking to know 'what works'. In both teaching and research settings, I attempted to survive in a linear culture while subverting the notion of linearity and developing a tolerance for uncertainty. There is no 'one time' underpinning the trajectory of this book or uniting the stories that form its data.

Stories of matter

The 'matter' of the title is both material and emotional – the entanglement of matter in the process of becoming and mattering. 'We are all matter, and we all matter.'[10] The ambiguity of these words has very much preoccupied my thinking process and those of others, such as Karen Barad, who points out the resonances between what we think of as material matter at a scientific level and emotional matter at a human level.[11] These notions of both organic and inorganic material becomings form a significant part of Deleuze's thinking on the non-human dimensions of his work on bodies without organs,[12] 'that thrives in the multitude of its modalities'.[13] The idea of 'becoming' is very much central to Deleuze's work – the means by which we become other. And there are connections here also to the work of Biesta, who argues that education is (or should be), in part, a process of 'subjectification'[14] – in itself a form of becoming. Similarly, the philosophy connects to the world of theoretical physics.

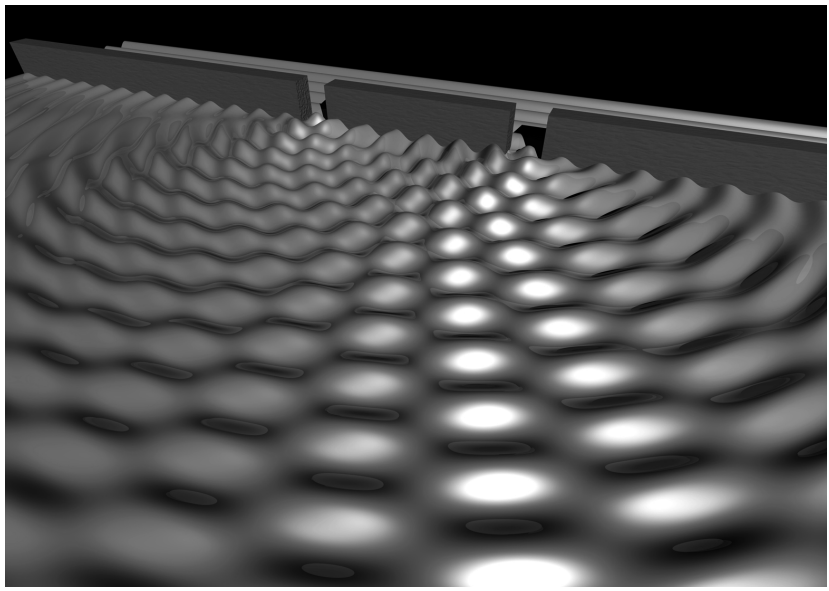
Karen Barad, herself a theoretical physicist, challenges notions of intentionality from both within the human perspective and the more non-organic material perspective at the level of particle physics. Just as 'there is no determinate fact of the matter' in human intentionality,[15] she argues, the same is true of all matter. For the physicist, the acceptance that the conceptual and the real are both material is a given. Niels Bohr argued that his work was not 'ideational' but related to 'specific physical arrangements'.[16] The intra-actions between the physical world and the educational experience are explored throughout – environment and bodies messily enmeshed in learning processes and memories. And underpinning them all is the notion that it is possible, always possible, to become 'other'. That life is not predetermined; that possibility always exists.

I have found myself indebted to Barad's explanation of mattering which resonates with these ideas:

Individuals do not pre-exist their interactions; rather, individuals emerge through and as part of their entangled inter-relating … matter and meaning, come into existence, are iteratively reconfigured through each intra-action, thereby making it impossible to differentiate in any absolute sense between creation and renewal, beginning and returning, continuity and discontinuity, here and there, past and future.[17]

For Barad, these impossibilities suggest a process of becoming which is better understood through the metaphor of diffraction than reflection. She points out that the use of reflective practices makes assumptions about the nature of reality – a 'right back at you' approach – whereas diffraction focuses on differences, small and minute differences, in order to better understand things and processes. She uses the images of waves in diffractive patterns to show how diffractive methodology might work in visual terms. It is at the points of intra-action where we should focus our attention.

In short, it is at the point where there are differences, outliers, disturbances that the really interesting stuff happens. In education, we too often look for the trend, the pattern, the average. But it is not here that



Diffraction in water

challenge is born. It is in the nuance, the not yet, the difficulty. If we focus on the trend, we'll always miss the possibilities sitting just out of sight, at the edges of our experiences.

There are clearly resonances here – in Barad's images of diffraction, where waves of physics and philosophy converge – with the developing understanding of the workings of the mind through neuroscience. Susan Greenfield touches upon the overlaps of the two science disciplines in her writing as she explores the 'assemblies' of consciousness and accepts the limitations of her science:

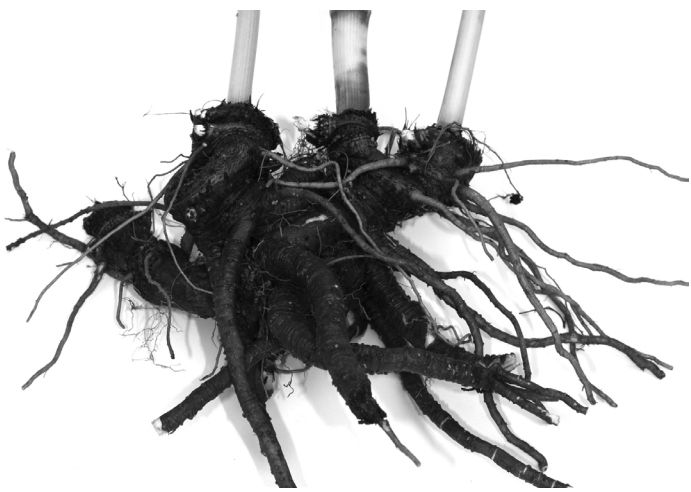
The big and indeed unanswerable question now … is what phenomenology can be matched up with this very physiological phenomenon of a neuronal assembly? … The great question is still the causal, water-into-wine relationship of the physical brain and body with subjective mental events.[18]

Greenfield argues for closer working between biological neuroscientists and quantum physicists, but she also acknowledges the role of philosophy and anthropology. This blurring of the lines between disciplines

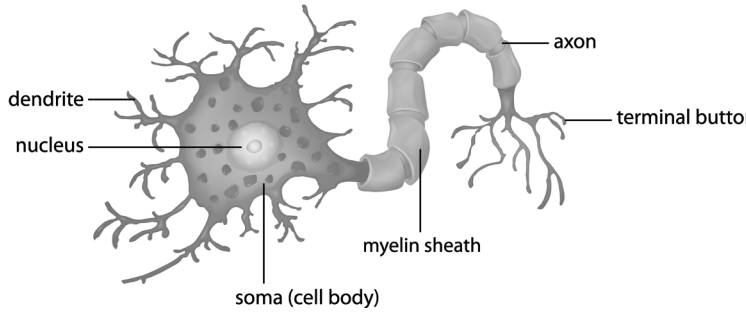
and ideas is fractal – the point at which one thing converges on/with/through another. Her view of the brain–mind relationship brings modern-day neuroscience much closer to that explored by Deleuze and Guattari. Indeed, the lines between philosophy and science are blurred in the field of physics too, particularly at quantum level where the notion of lines and outlines is also problematic. As Feynman says in explaining the structure of the atom, 'what is the Outline? … It is not, believe it or not that every object has a line around it! There is no such line!'[19] Similarly, time and place are differently understood at the subatomic level, drawing scientists into an acceptance of unpredictability: 'it is not possible to predict what will happen in any circumstance'.[20] Neuroscientists use these uncertainties and complexities to warn against reductionist views of the brain,[21] a position that Deleuze and Guattari posited while brain science was relatively new:

The brain is not a rooted or ramified matter … the discontinuity between cells … make the brain a multiplicity immersed in its place of consistency or neuralgia, a whole uncertain, probabilistic system.[22]

As I am drawn to the connections between Deleuzian concepts and scientific metaphor, I find myself visualising another natural form – the rhizome. Look at the images below of the plant and of the brain cell:



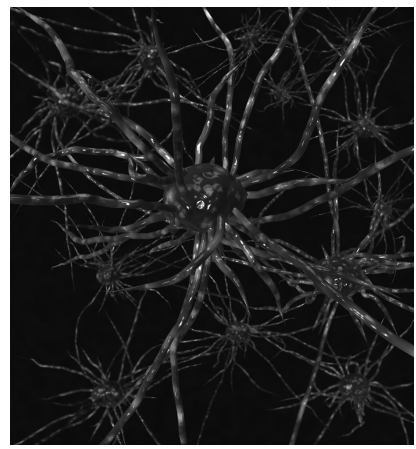
Rhizome plant structure



Dendrites and brain cells

And the networks they produce:

Rhizome root network



Synaptic link network

Synaptic links, like rhizomes, appear in the 'middles' and are complex assemblages of proteins and hormones; of cells and particles interacting in ways that are unpredictable, and which together create emergent systems which are more than the sum of their parts – or immanent. These developing understandings of the brain bring science closer to Deleuze and Guattari's declaration that the brain is 'grass', that is complexly and rhizomatically interconnected.[23] The fusing of these two worlds through the interdisciplinary reading of images and texts creates new understandings.

Many aspects of my attempts to explain and outline my rationale for the role of exploratory research in my work wrestle with the ideas of 'difference' and 'repetition'. Derrida and Deleuze have used these words in contrasting ways. Barad brings those contrasts closer by conceptualising the Derridian concept of 'difference' through diffractions.[24] Diffractive analysis requires a series of returns – a key element of Deleuze's work on difference. Although these theorists contemplate what seem to be similar concepts, for example repetition, the difference between their positions is marked. It is described by Bearn as, 'simple and deep: it is the difference between No and Yes'.[25] I am drawn to the potential of these and other complexities. For Derrida, the deconstruction of the 'norm' performed strategic reversals, forcing the reader to worm into the roots of discourse and of social constructs to better understand how our identities, values and cultural selves are created and maintained. I am also drawn to his rejection of empiricism.[26]

Deleuze extends the notion of 'difference' in *The Logic of Sense*. Both he and Guattari offer a new way of conceptualising difference, moving from root to rhizome and from language to a broader plane of immanence and affect.[27] For Derrida, the digging into discourse creates 'depth', but for Deleuze it is not depth but width that yields the most interest. Much of the work for this book has been spent 'digging' for roots, but finding along the way that the network is complex and unpredictable, and is spread along or near to the surface. Instead of roots I have found rhizomes. Instead of digging down I have learned to rake across, and this is an important skill for a teacher working in a culture that desires single answers. If we dig down too deeply into one line of enquiry, we are in danger of blinding ourselves to the multiplicity of the width.

In education, this has become evident in the way in which politicians have pursued synthetic phonics as an 'answer' to the complexity of reading, forcing a hard stare at a single solution. Meanwhile, at the edges of our vision, boys in particular are losing a love of reading which impacts on their future success at school and in life.[28] Viewing an issue thinly – looking at the edges for unintended influences and consequences – takes vigilance and patience. It requires returns. It is not shallow to work in the shallows.

These impossible differentiations between time, discipline and creation – the images of intra-related connections which fold in on themselves and become both inner AND outer – have come to dominate my view of matter and mattering. These entanglements have drawn me to notions of complexity and to the points at which philosophy and science become entangled. Ricca explores how complexity theory has developed within a scientific framework,[29] and offers useful parallels for viewing educational experiences in the classroom as complex adaptive systems, characterised by 'growth, mutual influence and non linear connectedness'.[30] Similar connections between complexity, science and social/educational research have also been developed by Barad, Walby, Allan and Turner, among others, and both Protevi and Plotnitsky have written about the connections between the Deleuze–Guattari project and theories of chaos and complexity.[31] This complexity leads Biesta to encourage us to celebrate education as a 'beautiful risk' in which uncertainty and complexity are not to be feared but to be embraced and worked with as tools of hope and possibility.[32] There are striking resonances between the metaphors used by scientists to explore complexity and Deleuzian notions of immanence, folds and rhizomes. As a result, I have become interested in thinking within science about complexity and Deleuzian philosophy as lenses through which classroom interactions might be viewed. I stress here that my interest in, and references to, science do not stem from a positivist frame; instead, I draw from the difference between science and scientism – the former being the pioneering work at the edge of certainty and the latter rooted in a deadening desire for certainty.[33] It is within the former definition that I have found scientists playing with ideas and language in a field of complexity and uncertainty.

The inter- and intra-relationship between ideas and experiences requires a mode of eclecticism in terms of exploring educational ideas driven

This is an honest, challenging and incredibly profound book that will make you stop and think – deeply – about what you do, why you do it and the effect it has. You will never look at teaching in the same light again.

The teaching manual is a form of book which has become increasingly popular in recent years. There is an assumption that careful replication of set principles should underpin the work of teachers. However, both the ethical and the particular can become buried and lost in such narratives. *Becoming Mobius*, growing out of the philosophies of Deleuze and Guattari, instead emphasises the particular, the transient, the detail of the lived experience in education. It provokes the reader to consider the intricate networks of teaching from a series of alternative perspectives and, in so doing, to reflect on their own assumptions about practice, ethics and beliefs. This book challenges us to think about and reflect on what we value in education, not by telling us how we should act, but by sensitising us to the everyday complexity and experience of being a teacher.

Dr Philip Wood, Senior Lecturer, School of Education, University of Leicester

In this compelling, conceptually rich and moving book, Debra Kidd creates a unique engagement with the UK educational environment. Taking inspiration from the work of Deleuze and Guattari, she uses insightful analyses of ethnographic data taken from her own classrooms to explore how experiences of uncertainty constitute the living material of educational practice. She shows how the fetishisation of certainty – of a fixed stock of knowledge and 'values' – constrains educational practice now more than ever before in the UK, thanks to increasingly centralised political control. Yet uncertainty, Kidd maintains, is not to be feared. It must instead be seen as a positive contribution to order, as the source of novelty, surprise and transformation. Through eight chapters, presented as 'plateaus'; extended engagements with awkwardness, difficulty and antagonism in the classroom, she extracts from her experiences moments and encounters which exemplify learning in the sense articulated by Deleuze and Guattari, the 'making of sense from sensation'. Kidd shows with clarity, humour and verve how the classroom can become a site of small resistances that hold open the promise of different futures, multiple lines of flight shot through a deadening crust of compliance and conformity.

Dr Christopher Groves, Research Associate,
School of Social Sciences, Cardiff University

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