

Educational Life-Forms

Deleuzian Teaching and Learning Practice

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NOEL GOUGH

FOREWORD

Escaping the Program: A Foreword

When the path is clear and given, when a certain knowledge opens up the way in advance, the decision is already made, it might as well be said there is none to make: irresponsibly, and in good conscience, one simply applies or implements a program. Perhaps, and this would be the objection, one never escapes the program. In that case, one must acknowledge this and stop talking with authority about moral or political responsibility. The condition of possibility of this thing called responsibility is a certain *experience and experiment of the possibility of the impossible; the testing of the aporia* from which one may invent the only *possible invention, the impossible invention* (Jacques Derrida, 1992b, p. 41, italics in original).

The only way to discover the limits of the possible is to go beyond them into the impossible (Arthur C. Clarke, 1962, p. 21).

I used the epigraphs above to introduce another recently-completed essay (Gough, in press), but I make no apology for recycling them here because I interpret David R Cole's book as providing an imaginative and provocative alternative response to the problem I attempted to address in it. The problem – which I posed as 'can we escape the program?' – arose in the context of a national Education Research Futures Summit, a joint venture of the Australian Association for Research in Education (AARE) and the Australian Council of Deans of Education (ACDE), the purpose of which was 'to contribute to a capacity of education researchers to analyse, envisage and plan for the future, conceived in terms of not one future but a range of possible ways of thinking and conceiving the future' (Alison Lee, et al., 2010, p. 1). My contribution to the Summit brought together two lines of inquiry, each of which explores the paradoxical problematics that both Jacques Derrida and Arthur C. Clarke signal in the passages quoted above – paradoxes and problems that puzzle poststructuralist philosophers and authors of science fiction alike, and which necessarily attend the ways that we think, act, and responsibly position ourselves in relation to unpredictable, uncertain, unknowable and incalculable futures. I will describe these lines of inquiry, and the *problématique* they explore, in a little more detail, because much of my enthusiasm for the approach Cole takes in this book is due to the fresh insights he provides on a number of deeply troubling aspects of educational inquiry and practice.

One line of inquiry, which has now preoccupied me for more than three decades, explores alternative futures in education, with particular reference to the

ways in which 'the future' can be understood as an object of scholarly inquiry. This research has encouraged me to value alternatives to what Derrida calls 'the program' – the 'clear and given' path that 'certain knowledge opens up... in advance' and that draws us toward a future that we are 'programmed', as it were, to (re)produce. It has also led me to distrust categorical distinctions between 'possible' and 'impossible' futures and to see generative potentialities in refusing to demarcate them.

More recently I have engaged with a line of inquiry that explores how the language of *complexity* – a heterogeneous assemblage of concepts and metaphors arising from complex systems theorising in a variety of scholarly disciplines – invites us to rethink education in terms of *emergence*. As Jeffrey Goldstein (1999) writes, emergence 'refers to the arising of novel and coherent structures, patterns, and properties during the process of self-organization in complex systems' (p. 49). Complex self-organising systems provide conditions in which Derrida's 'impossible inventions' might emerge because the radical novelty of emergents cannot be anticipated before they actually materialise – they emerge from experimentation with what, *in the present*, cannot be foreseen as a possibility (see also Jacques Derrida, 1992a, p. 16). Complexity potentially destabilises the instrumentalist rationality that 'programs' educational systems (and agents/agencies within them) to privilege orderly and predictable processes culminating in stable output.

Cole brings Gilles Deleuze's philosophy to life as he pursues lines of inquiry that, to my mind at least, complement and converge with the ones I describe above. The word 'future' appears frequently throughout this book's pages, as do variations on terms such as 'complex/complexity' and 'emergent/emergence'. Cole demonstrates how thinking with Deleuze offers incentives and opportunities to 'escape the program' but, as he writes at the beginning of chapter 7, this is not achieved via 'a confrontational approach' that desires 'to immediately revolutionise current practice'. Rather, Cole 'engages with the interstices and crossing points between the known and unknown in teaching and learning to unlock a potential future of education'.

Those of us who share Cole's passion and determination to work between the known and unknown understand the difficulties of doing so, but our efforts to materialise the various potentialities of futures-oriented thinking, complexity, emergence, and Deleuzian thought are also constantly undermined by a politics of *complexity reduction* that pervades public life in many nations (see Gough, 2010). Among the most pernicious and destructive examples of this politics is the idea that education should be reduced to an 'evidence-based' practice by seeking causal links between measured educational 'inputs' and the measurement of outcomes. This 'what works' program is now an uncritically taken-for-granted assumption in many countries. Advocates of evidence-based education, such as David Hargreaves' (1996) and Robert Slavin (2002), argue that educational inquiry should be modelled on scientific research procedures in fields such as medicine, including large-scale experimental randomised controlled field trials.

My converging/emerging positions on futures and complexity lead me not only to accept that there are limits to predictability and control but also that we *should* understand that educational processes *ought to be* characterised by gaps between 'inputs' (policy, curriculum, pedagogy) and 'outputs' (learning). In Gert Biesta's (2004) terms, these are not gaps to be 'filled' but *sites of emergence*. In other words, what we have previously imagined to be 'outcomes' or 'products' – knowledge, understandings, individual subjectivities, etc. – emerge in and through educational processes in unique and unpredictable ways. However, we must also bear in mind the possibility that attributions of emergence reflect our ignorance of non-emergent explanations (see Mark Bedau, 2008), which is precisely why we should entertain, to repeat Derrida's (1992b) words, '*the possibility of the impossible*' and strive to invent '*the impossible invention*' (p. 41). As Derrida (1989) insists, such an invention is incalculable before it actually appears and must 'declare itself to be the invention of that which did not appear to be possible; otherwise it only makes explicit a program of possibilities within the economy of the same' (p. 60). Although Cole mentions Derrida only once in passing (which is not, I hasten to say, a criticism), I am convinced that this book can be read as a powerful enactment of Derrida's notion of '*testing of the aporia*' and brings us closer to materialising '*the impossible invention*'.

Deborah Osberg and Gert Biesta (2007) argue that an 'emergentist' understanding of knowledge production converges with Derrida's account of deconstruction, neither of which challenge existing knowledge by overturning it:

Rather, they ask us to imagine a future which is *incalculable* from the perspective (or logic) of existing knowledge. They do this through affirming existing knowledge *without allowing it to overrule what is to come*. By acknowledging but not *following* existing knowledge, both deconstruction and strong emergence seek to negotiate a passage between the knowledge that has been and that which is still to come (p. 45, italics in original).

Osberg (2010) refines this argument by focussing more explicitly on how the respective 'logics' of emergence and deconstruction might help us 'to act responsibly towards an incalculable future – to care enough to do justice to the future' (p. 162). She argues that although the future is 'incalculable', this 'does *not* mean that we should no longer try to influence the future by making decisions about it' or 'that we should passively accept whatever comes our way' (p. 162, italics in original). Rather, we can adopt 'an emergentist understanding of process, which is *not* orientated towards control and closure (choosing what to do) but towards the invention of the new (putting things together differently)', which allows us 'the possibility to think about the future in non-teleological terms' (p. 163, italics in original).

Cole refers to evidence of several kinds and forms, including empirical studies of children reading in and out of schools, and recent brain research that shows learning to be mostly a function of novelty, but he does so in the spirit of Osberg and Biesta's sense of 'acknowledging but not *following* existing knowledge'. Unlike far too many education researchers in recent years, Cole neither claims that

he has better evidence than someone else nor assumes that the mere use of the word 'evidence' is enough to clinch an argument. But more importantly than this, Cole writes in the spirit of Deleuze's (1995) encouragement for 'writing to bring something to life, to free life from where it's trapped, to trace lines of flight' (pp. 140-1). This is particularly evident in Cole's deployment of the Deleuze-inspired figuration of 'educational life-forms' in contrast to the more conventional academic tactic of arguing through metaphor. To illustrate this point, I will compare Cole's approach with Thomas Ricks' (2010) argument that a recent 'bacteriology paradigm revolution' can function as a metaphor for (re)interpreting Chinese excellence in mathematics education.

Ricks begins by pointing out that Chinese nations – including the mainland, Taiwan, Hong Kong, and Singapore (77% ethnic Chinese) – lead the world in mathematics education as measured by performance on international comparative tests. He then uses recent developments in bacteriology as a metaphor for understanding China's education successes by challenging common conceptions that Chinese education is 'traditional' due to their large class sizes, lecture-based/teacher-centred pedagogy, exam-driven curriculum, technology-barren classrooms, and student recitations. Until recently, bacteriology was dominated by a laboratory model of culturing bacteria in nutrient-saturated media, which defined bacteria as primitive eating and reproducing machines, and limited bacteriologists' understanding of the development of new potent bacterial strains resistant to the most powerful antibiotics. Bacteriologists assumed that 'superbugs' arose through inherited immunity, that is, antibiotics culled colonies, leaving only the most resistant cells to reproduce into drug-proof strains. Medical research thus concentrated on developing more powerful antibiotics to battle this increased resistance.

But more recent research suggests that superbug strains form not so much from inherited genetic immunity but through intercellular collaboration and purposeful problem solving at the colony level. The new bacteriology paradigm addresses intercellular relationships that consider the colony as a single – albeit loosely coupled – organism. Bacteriologists now see how hostile environments trigger individual bacteria to cooperate; when survival is threatened the entire colony forms a complex system in which individual bacteria are intertwined, interrelated, mutually-reinforcing members. The colony exhibits novel behaviours not shown by individual cells. Using various chemicals (simple molecules, polymers, peptides) and more complex molecules (proteins, bits of genetic material, plasmids, viruses), bacteria form a colony-wide genomic web through which they exchange genetic material and splice it into existing DNA to develop genetic solutions that are quickly shared with the other colony members. Specially bred, non-immune bacteria have demonstrated colony-wide resistance to low-level antibiotic exposure, with entire colonies developing genetic immunity in as little as 48 hours. Researchers now try to fight bacterial infections in part by developing drugs that interrupt bacterial communication.

Using the 'bacteriology paradigm revolution' as a metaphor, Ricks argues that China's 'traditional' modes of instruction mask the deeper factors that make it so

successful. He argues that the Chinese use many principles that are core to initiating complex systems, such as forming local and regional collaborative groups that attempt to solve the issues facing them, as well other complex activities. For example, students in China often work in small groups after an introductory teacher lecture to solve specially-designed problems that occasion classroom-based student complex systems. Thus, although a lecture by itself may be a less effective method for mathematics instruction, the combination of a teacher lecture prior to collaborative student activity may enhance that activity by providing a framework (a type of constraint) to focus that activity. Additionally, teachers work together in research groups, school collaboratives, and city-level or regional cooperatives to further develop the national curriculum. Ricks also suggests that the more holistic Chinese approach (where students and teachers advance together in unified cohorts over multiple grades, parents are more involved in their child's education – even attending classes – and universities cooperate with schools to implement the national curriculum) helps the Chinese to develop mathematising complex systems more readily in their classrooms, schools, and communities. He argues that the 'traditional' Chinese educational methods – largely formed during the Communist era after World War 2 – are a revolution against the entrenched traditional reductionism of Western educational systems. Whereas the USA is isolationist and fractured in its mathematics education practices, the Chinese have networked communities at the class, school, and regional level that provide for much more robust complex functioning. The Chinese practice of deprivatising their work contributes to this process. They have developed structures that provide for sufficient redundancy to allow complex formations to coalesce, but with enough freedom for individual creativity, and enough expectations (constraints) to keep the system operating efficiently.

I was present when Ricks presented his argument to an audience that included more than 200 Chinese academics at a conference in Shanghai in November 2010. My immediate impression was that his choice of metaphor might be forced and even offensive, but I was also puzzled as to what a reader/listener might be able to *do* with the metaphor, with what its *function* might be. This is where the difference that some Deleuzian scholars see between metaphor and figuration comes into play. Rosi Braidotti (2000) argues that 'the notion of "figurations" – in contrast to the representational function of "metaphors" – emerges as crucial to Deleuze's notion of a conceptually charged use of the imagination' (p. 170). Similarly, Donna Haraway (1997) asserts that 'figurations are performative images that can be inhabited... condensed maps of contestable worlds... {and} bumps that make us swerve from literal-mindedness' (p. 11). The 'bacteria-hurricane machine' that Cole introduces in chapter 1 is just such a 'conceptually charged use of the imagination' – a bump that could make us swerve from the literal-minded metaphorical representation of Chinese learners as 'like' a bacterial colony. Because the bacteria-hurricane machine acts on both the micro and macro levels it encourages us to imagine the life forms of Chinese education as a conjunction of the micropolitics of classrooms and family homes and the macropolitics of the world's most populace nation.

As Cole writes of the bacteria-hurricane machine towards the end of chapter 1:

This machine may give rise to pedagogy that explores the facts and mechanisms of bacteria and hurricanes, and a resulting wealth of mathematical and scientific ideas. On the other side of knowledge work, the bacteria-hurricane machine could be an inspiration for artistic, musical and written work. What would a bacteria-hurricane machine look like? What would it sound like? How could we describe its action? What would happen if a bacteria-hurricane machine appears in the world?

These are very generative questions that I trust readers will accept the challenge of answering, along with the many other such questions – stated or implied – to be found in this book. I am convinced that engaging with such questions and provocations is one of our brightest hopes for escaping the program.

REFERENCES

- Bedau, Mark A. (2008). Is weak emergence just in the mind? *Minds and Machines*, 18(4), 443–459.
- Biesta, Gert. (2004). 'Mind the gap!' Communication and the educational relation. In: Charles Bingham & Alexander M. Sidorkin (Eds.), *No Education Without Relation* (pp. 11–22). New York: Peter Lang.
- Braidotti, Rosi. (2000). Teratologies. In: Ian Buchanan & Claire Colebrook (Eds.), *Deleuze and Feminist Theory* (pp. 156–172). Edinburgh: Edinburgh University Press.
- Clarke, Arthur C. (1962). *Profiles of the Future: An Inquiry into the Limits of the Possible*. London: Victor Gollancz.
- Deleuze, Gilles. (1995). *Negotiations 1972–1990* (M. Joughin, Trans.). New York: Columbia University Press.
- Derrida, Jacques. (1989). Psyche: inventions of the other (Catherine Porter, Trans.). In: Wlad Godzich & Lindsay Waters (Eds.), *Reading de Man Reading* (pp. 25–65). Minneapolis: University of Minnesota Press.
- Derrida, Jacques. (1992a). Force of law: the 'mystical foundation of authority' (Mary Quaintance, Trans.). In: Drucilla Cornell, Michael Rosenfeld & David Gray Carlson (Eds.), *Deconstruction and the Possibility of Justice* (pp. 3–67). New York: Routledge.
- Derrida, Jacques. (1992b). *The Other Heading: Reflections on Today's Europe* (Pascale-Anne Brault & Michael Naas, Trans.). Bloomington: Indiana University Press.
- Goldstein, Jeffrey. (1999). Emergence as a construct: history and issues. *Emergence: A Journal of Complexity Issues in Organizations and Management*, 1(1), 49–72.
- Gough, Noel. (2010). Lost children and anxious adults: responding to complexity in Australian education and society. In: Deborah Osberg & Gert Biesta (Eds.), *Complexity Theory and the Politics of Education* (pp. 39–55). Rotterdam: Sense Publishing.
- Gough, Noel. (in press). Can we escape the program? Inventing possible–impossible futures in/for Australian educational research. *Australian Educational Researcher*, 37(3).
- Haraway, Donna J. (1997). *Modest_Witness@Second_Millennium.FemaleMan@_Meets_OncoMouse™: Feminism and Technoscience*. New York and London: Routledge.
- Hargreaves, David H. (1996). *Teaching as a Research-Based Profession: Possibilities and Prospects*. [Teacher Training Agency Annual Lecture] London: Teacher Training Agency.
- Lee, Alison, Johnson, Nicola, Parkes, Robert, & Maher, Damian. (2010). AARE/ACDE National Education Research Futures Summit: Final Report. Retrieved 1 February 2011, from <http://tiny.cc/bc7g0>

- Osberg, Deborah. (2010). Taking care of the future? The complex responsibility of education and politics. In: Deborah Osberg & Gert Biesta (Eds.), *Complexity Theory and the Politics of Education* (pp. 157–170). Rotterdam: Sense Publishing.
- Osberg, Deborah, & Biesta, Gert J.J. (2007). Beyond presence: epistemological and pedagogical implications of 'strong' emergence. *Interchange*, 38(1), 31–51.
- Ricks, Thomas E. (2010). China, microbes, and complexity: how to improve mathematics education. Paper presented at *Complexity, Chinese Culture, and Curriculum Reform*, Institute of Curriculum and Instruction, East China Normal University, Shanghai, 5–7 November.
- Slavin, Robert E. (2002). Evidence-based education policies: transforming educational practice and research. *Educational Researcher*, 31(7), 15–21.

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INTRODUCTION TO EDUCATIONAL LIFE-FORMS: DELEUZIAN TEACHING AND LEARNING PRACTICE

INTRODUCTION

This book sets out to use the philosophy of Gilles Deleuze for the purposes of education. The statement of this aim means that one is immediately confronted by two problems:

1. How consistent is the philosophy of Gilles Deleuze?
2. What did he say about education, and has this been said elsewhere by those primarily concerned with teaching and learning?

With respect to the first point, certainly the uptake of Deleuzian philosophy in education denotes a non-systematised, potentially contradictory approach. Yet, there is sense in this potentially confusing starting point. The most prevalent advantage to deploying Deleuze in education is that one does not become embroiled in futile system building. The notion of a 'one size fits all' conceptual framing for education is immediately withdrawn through Deleuze. In the place of theoretical framing, one has to be sensitive to context, able to invent concepts, flexible and creative in one's use of language, conscious that theory and practice are constructed, and, above all, be responsible for the consequences of one's writing. Education systems can represent monolithic wills to power on the social plane (see Hayes et al., 2006), and the construction of hegemonic power with its accompanying inflexibility will be challenged through this book, as one becomes aware of a different way to teach and learn through educational change as process.

The second problem is a scholarly one, yet has relevance to this introduction. Deleuze's specific concern for education comes full circle from his dissertation, *Difference & Repetition*, where the notion of learning is discussed at several points and related to the key Deleuzian concept of singularities (1994a). To the pedagogy of the concept that Deleuze & Guattari (1994) discuss in their last joint venture, *What is Philosophy?*

If the three ages of the concept are the encyclopaedia, pedagogy, and the commercial professional training, only the second can safeguard us from falling from the heights of the first into the disaster of the third – an absolute disaster for thought whatever its benefits might be, of course, from the viewpoint of universal capitalism (p. 12).

Deleuze therefore accords education great importance through pedagogy, though he never engaged with a fully realised philosophy of education. Rather, Deleuze embodied the educational principles of his philosophy with respect to his work at Vincennes and as a public intellectual. This book shall tease out his philosophy of education from the clues that he has given us, and yet will try to do something fresh with the material. For example, the pedagogy of the concept that Deleuze and Guattari (1994) discuss in *What is Philosophy?* is aligned with their notion of concept creation, that is, according to them, the proper work of philosophy. The point here is not that anyone can make up concepts and that they will have an equal impact in the world, but that the careful and precise construction of concepts may give one the architecture of mobile thought. Deleuze avoids cognitivism through engagement with the socio-affective aspects of concepts, and uses pedagogy as a means to social demonstration. Concepts also have to do work in the world, and survive, sometimes under a barrage from competing and parallel terms. The pedagogy of the concept is therefore pragmatic in that the philosopher will experiment and trial new ways to get their points across. Thought should live according to Deleuze, and not get bogged down in dead ends or closed systems (1994a). This book is an example of such an approach, challenging us to understand Deleuze's ideas, and to apply his philosophy to make education work better.

With respect to the other theorists working in this field, this book aligns an array of Deleuze commentators, Deleuze sources and educational thinkers who have worked in the area of pedagogy and expounded ideas that are parallel and complementary to the educational life-forms. The point of this alignment is to show that Deleuze gives us a new way forward in education, one that could take over the reigns from critical theory, that blends feminist concerns with pragmatism, and introduces new terms and concepts into the politics of education (see Peters, 2004). Deleuze does not allow one to remain still, or in certitude, but sets up a type of restlessness, a questioning and expansive mode in education, one that should take one into (an)other space. Gilles Deleuze was a rigorous philosopher whose applied ideas carve out a new way of thinking about education, one that this book addresses and takes seriously as a mode of 'singular-becoming' (cf. May, 2003).

EDUCATIONAL LIFE-FORMS

What is an educational life-form? The first section of the title is an example of conceptual creativity that has been derived from Deleuze. Of course, in schools, colleges and universities, there is an abundance of life. However, this isn't the point of the life-forms. The primary implication of the life-forms and their use in this book is that one should think through the questions about life with respect to education. For example, the ways in which teacher training happens can be a matter of machinic functioning in terms of responding to the demands of government and schools for teachers (see Darling-Hammond & Bransford, 2005). These processes can determine the type of teacher training that takes place inside the institutions – that could become demand driven and primarily reacting to notions of efficiently producing teachers for specific demands. Such teacher training institutes would perhaps have no time or space

for the vagaries of philosophy, thought would be effectively shut down or kept to a minimum in such places, concept creation would be replaced by pre-determined outcomes and criteria based teaching and learning. One could say that the educational life-form of these machine driven teacher training institutes has been determined by outside forces, which tend to consign open thought and imagination to otherness (cf. Gough, 2004). However, one of the points of thinking through the questions of life with respect to education, and as educational life-forms, is that the signs of life can never be extinguished from a learning context. For example, rebellion and dissonance may be discussed inside the machine driven institution, despite being officially taken out of the curriculum. Lecturers and students can do philosophy in another name, e.g. educational theory or 'framing'. The sets of educational criteria and outcomes based learning packages can be questioned and critiqued just as soon as they are presented and implemented. Therefore, different educational life-forms may emerge from the inside, and in contradiction to a prevailing climate or machinic process.

The second implication of the educational life-forms is that one may perform conjunctive synthesis. This is a type of experimentation with form, which also encourages one to think (about life). Education is about understanding and joining the natural and the 'man-made', and in many ways, dispensing with this false dichotomy. The heterogeneity of potential educational life-forms is parallel to the diversity one finds in the natural world, and involves bringing concrete examples to bear on learning styles and education. In the following two figures (1 & 2), I have tried to assemble two highly diverse systems to envisage a new educational life-form:

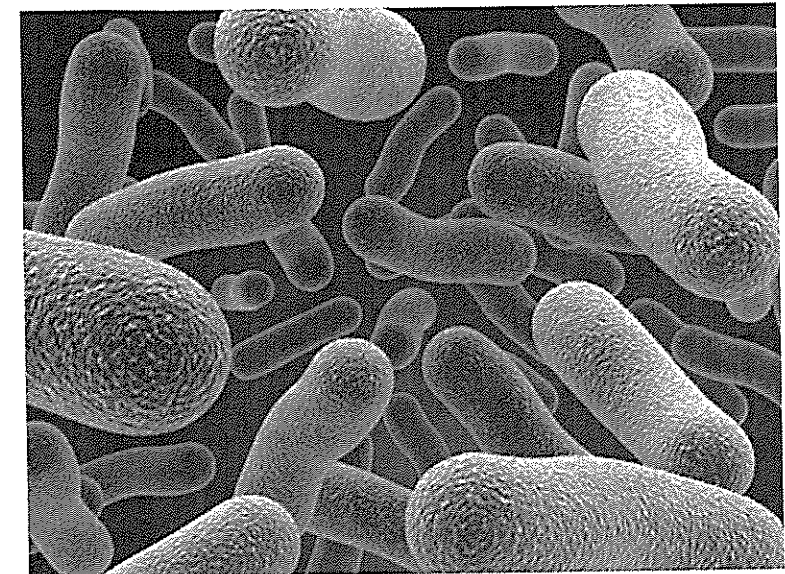


Figure 1. Computer representation of bacteria.

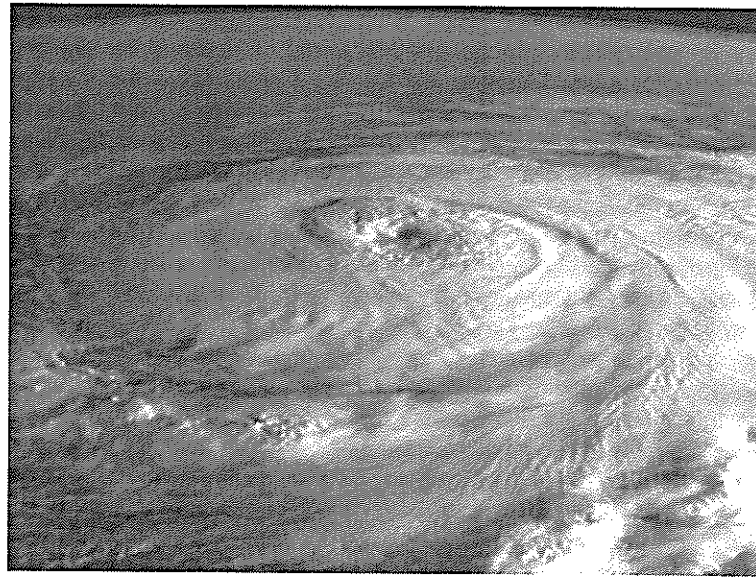


Figure 2. Hurricane Isabel photographed from space. Courtesy of NASA: (www.nasa.com).

Bacteria works on the micro level by showing prodigious reproductive power, morphogenesis, survival and invasive instincts. Hurricanes act on the macro level, able to generate power from a vortex and ingest smaller systems as they grow in size and vigour. The bacteria-hurricane conjunction is therefore a powerful conceptual system. This life-form could be lethal in many ways, as it brings to bear a vast array of resources on bodies. If one applies this new life-form to education, it could be seen to be a means to learning that works on a micro and macro level. The bacteria-hurricane machine functions by encountering others, and by engaging in invasive action. The bacteria infects any susceptible hosts, the hurricane sweeps them up into its swirling mass. The bacteria-hurricane machine is a thought experiment that encourages the imagination, and joins natural life forms in new creation. This is the type of thought that is enabled through the educational life-forms and should be enacted through Deleuzian teaching and learning practice.

DELEUZIAN TEACHING AND LEARNING PRACTICE

The second part of the title of this book names the way in which one is being encouraged to teach and learn as Deleuzian. To summarise this conception, I have drawn together the main parts of this practice in the radiating diagram below (Figure 3):

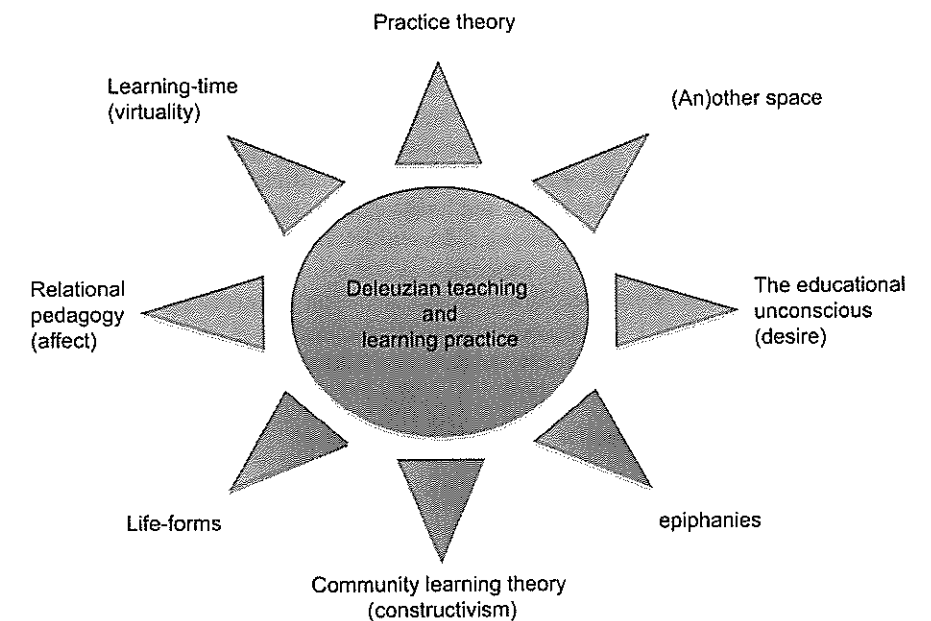


Figure 3. Deleuzian teaching and learning practice.

Deleuzian teaching and learning practice is the centrepiece of this book. Everything goes through this practice, and emerges from it altered to some extent. This alteration happens because the ways in which education is figured and (re)figured here is under sustained attention, from the micro to the macro, as in the example of a new life-form above (the bacteria-hurricane machine). Deleuzian teaching and learning practice is therefore an anathema to complacency, and an organising principle with respect to keeping alive one's identity as a learner (see Boud & Lee, 2005). This point is especially important for practising teachers or pre-service teachers, with their memory and unconscious certainly full of the ways in which teaching and learning has been done to them in the past. Practising teachers should gain life from using and thinking about Deleuzian teaching and learning practice, as commonplace assumptions and habitual ways of doing things are continually put under erasure. That's not to suggest that one is immediately transformed by Deleuzian teaching and learning practice, but that steps can be taken to address ways in which normative values and systems have permeated practice, and that shall henceforth be removed to the benefit of high quality teaching and learning.

Many of the points on the radiating diagram (Figure 3) shall be addressed throughout the chapters of this book. However, I shall presently look at the notion of Deleuze's philosophy as being connected to practice theory. To my knowledge, this is the first time that such a connection has been made, and it is therefore worth justifying more fully. Practice theory is often articulated with respect to

bacteria-hurricane machine appears in the world? The conjunctive synthesis of the bacteria-hurricane machine therefore stimulates the educational unconscious and the desire of the learners to explore this new realm of knowledge. Deleuzian teaching and learning practice encourages inter and cross-disciplinary work, knowledge structures are opened up, and systems are analysed with the prospect of sustained thought and developing competency in virtual manipulation.

THE CURRENT LITERATURE IN THE FIELD

This book fits in with a growing body of knowledge and a new field of exploration. This field joins the philosophy of Gilles Deleuze with education, and, not surprisingly, this can lead to a variety of uptakes and new options for teaching and learning. For example, Diana Masny (Masny, 2006) has been working for several years on her conception of Multiple Literacies Theory (MLT). She has noted that critical notions of literacy derive a new energy and drive from the injection of Deleuzian theory, and this can be summarised by the phrase, "Reading, reading the world, and reading the self as texts," (Masny & Cole, 2009, p. 6). Deleuzian literacy studies therefore give new life to understanding the processes of reading, and Masny (Masny & Cole, 2009) illustrates this life with evidence taken from close empirical studies of children reading in and out of schools. In contrast, Inna Semetsky (2006) has aligned Deleuze's philosophy with that of John Dewey, and interrogated the new notions of becoming and learning that this Deleuze-Dewey machine evolves. Semetsky has also worked in the areas of semiotics, the unconscious and ethics and her theoretical ideas have definite consequences for teaching and learning. For example, the systems of signs that one intuits through pedagogy form a plane of becoming that Semetsky parallels with notions of care and ethical choice. Semetsky (2010) notes that Deleuzian theory gives a new way of integrating ethics into education without the potential moral interference of rigid Christian values.

In the area of knowledge construction, Kaustuv Roy (2003) has discussed the possibility of a rhizomatic curriculum. This curriculum involves discreet, subterranean connectivity that can make knowledge work for learners in terms of their desires being aligned in the activity of the assemblage. Taylor Webb (2009) has taken the Deleuzian notion of assemblage to analyse the ways in which teachers are divided and organised by power concerns. Patrick Carmichael (In press) has taken a similar tact when looking at higher education and how pre-service teachers are organised and work in projects using ICT and that involve collaboration. There has been a special edition of *Educational Philosophy & Theory* (2004) on Deleuze and Education, and an edition of *Qualitative Studies in Education* (2010) that examined the ways in which using Deleuzian theory has consequences in terms of doing qualitative research in education. Noel Gough has been working for several years in the field of Deleuze and education, and has produced exciting essays that show how Deleuzian theory can change the ways in which one perceives the tasks of education (Gough, 2004, 2007).

This book therefore sits in a heterogeneous field of concern, where the philosophy of Deleuze is creating new paths to approach education. This growing body of literature is also bordered by the ways in which Deleuze has been taken up by the social sciences, cultural studies and literary studies (see the Edinburgh University Press, 'Deleuze Connections' series). For example, the Deleuzian notion of affect has gathered interest in gender studies, as the ways in which bodies are conditioned and identities are formed may respond to pre-personal affects that rest in context beyond subjectivity (e.g. Grosz, 1994). This analysis of identity formation also has consequences in education that has recently begun to be influenced by notions of emotional intelligence from the work of Goleman (1995). Deleuzian affect is a non-representational way of understanding how emotions are communicated that explains gender difference not in terms of biology (or an EQ), but due to the ways in which circuits of conditioning are communicated in, for example, capital accumulation. The philosophy of Deleuze has also influenced subjects as diverse as economics, health studies and studies of human geography (e.g. Thrift, 2004; Cohen & Kratz, 2009; Bonta & Protevi, 2004). This book signifies a different way of using the ideas of Deleuze, which integrates and explores the primary and secondary literature on Deleuze with the intention of producing new educational life-forms and a robust Deleuzian teaching and learning practice.

THE CONTENTS OF THE BOOK

Chapter two introduces the philosophy of life to the benefit of the educational life-forms and Deleuzian teaching and learning practice. The term 'philosophy of life' is a reading of Deleuze that is supported by the secondary literature, and will be applied to education. However, this phrase is not without its controversies, which shall be explored in chapter two in terms of how one may use elements of Deleuzian philosophy in education. For example, the ways in which the meaning of life may be rendered when understanding the point of action has educational consequences. Deleuze gives a new twist to the meaning of life in that it is given a synthetic and vitalist impulse (see Braidotti, 2010). These turnings are included in chapter two, as well as drawing out four major influences on the Deleuzian philosophy of life, that of: Spinoza, Bergson, Marx and Nietzsche. Chapter three acts as a counterpoint to chapter two, and explores the results of applying the philosophy of life to existing education systems. This application unearths phenomena in the current systems such as normalisation, boredom, examinations, making changes in the system and becoming locked into place. Chapter three is not a fundamentally negative look at what is happening now in education, but draws out educational life-forms through Deleuzian analysis. This means that elements in systems analysis that might usually be overlooked such as boredom and normality are fore-grounded as ways of understanding the reality of contemporary education. The philosophy of life does not give neat or easy solutions to students becoming bored or normalised, but this analysis is a starting point to making a difference. Deleuzian teaching

practice, taken as a whole, can be applied to improve education based on the analyses that are contained in chapter three, and the themes of life, epiphanies, the virtual and affect as explained by the following chapters.

Chapter four introduces the notion of pedagogic epiphanies to the educational life-forms and Deleuzian teaching and learning practice. Deleuze does not specifically mention epiphanies in his work, but relies on works of literature (see Deleuze, 1997) and the act of writing throughout his oeuvre alongside philosophical ideas as a fundamental type of creativity. Pedagogic epiphanies are a powerful way of understanding the processes of bringing the educational life-forms into existence, both in terms of a process and crossing points between life and education. Three narrative studies will be used in this chapter to illustrate pedagogic epiphanies, and to show how three individuals have evolved strategies to work with particular educational life-forms. Chapter five complements chapter four, as the Deleuzian notion of time is critical to understanding how pedagogic epiphanies work. Furthermore, the notion of time in Deleuze's philosophy requires an understanding of the virtual and the way in which Deleuze took this notion from Bergson (1994) and Nietzsche (1956). The virtual is a construction of time where the present is enlarged through application of the *élan vital* in *durée*, encouraging contemplation, multiplicity and sustained thought. To demonstrate the use of the virtual in education, I have floated this Deleuzian notion alongside the use of virtual reality (VR) as a learning tool. Virtual reality enlarges the present through the construction of new electronic worlds, Deleuzian teaching and learning practice takes us into (an)other space through epiphanies, the virtual and affect.

Chapter six looks at the common claim that teaching and learning is all about building relationships (cf. Albrecht-Crane, 2005). This chapter adds to this claim by introducing the Deleuzian notion of affect into pedagogy, which has been latterly discussed in the educational literature as constituting a form of ethology (e.g. Zembylas, 2007b) or relational nexus from Spinoza. I have played with this idea and invented a 2-role model of affect from Deleuze, as an example of double articulation with respect to teaching and learning and the educational life-forms. The first role of affect concerns the practice of philosophy in education, the ways in which language carries 'the truth', and how this plays out in pedagogy. The second role of affect is involved with the socio-cultural consequences of using language in pedagogy and how teaching and learning relates to group dynamics. It is argued in chapter six that in order to build relationships in education, educators should be able to deploy both roles of affect. The first role attends to a teacher's use of language and power, exemplified by classroom management, and Deleuze and Guattari's 'order-words', the second role develops relationships between the atmosphere of the class and any requisite knowledge work. The last chapter in this book examines several practical applications of the educational life-forms and Deleuzian teaching and learning practice. These applications include lesson planning, building curriculum, timetabling and issues to do with the teacher's labour and capital flows in education.

CONCLUSION

This book is designed to be a practical and effective means to change education. The use of the philosophy of Deleuze could lead one into metaphysical speculation about what exactly he was talking about at any given point in his career. Whilst this speculation would not be without its pleasures, it does sidetrack the point and focus of this book. One needs to engage with Deleuze's oeuvre and the fecund and emergent secondary literature in the field of Deleuze studies, whilst being strong and single minded with respect to Deleuze and education. This book takes from Deleuze what is necessary for the purpose of making changes happen in education. In Ian Buchanan's (2000) terms this book enacts a type of Deleuzism as an applied instance of using Deleuze's philosophy. Buchanan (2000) wished to avoid the somewhat looser formulations of Deleuzian thoughts as they have recently appeared. The danger of Deleuzism is that the take up of Deleuze as a consistent philosophical system is often contradicted by the writing itself. This is because Deleuze was against making a conformist herd formation around his ideas. It could be stated that the philosopher didn't want a political Deleuze party to sing from the same hymn sheet at a Deleuze party conference. Rather, Deleuze was concerned about the freedom to think and write art, philosophy, science and politics. This book takes a similar line with respect to the uptake of Deleuzism in education. The challenge of the educational life-forms and any subsequent Deleuzian teaching and learning practice is to put the ideas of this book into action. This process should not be a slavish and regulated implementation of homogenised directives, but an engagement with the genuine challenges to thought in education.