

Teacher-Education-Desiring-Machines

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Introduction

This article will argue that the notion of a teacher and the coexisting teacher education processes are being progressively emptied out, and replaced by the model of a corporate worker, serving the needs of a post-industrial financial capitalist society. This society requires flows of money, as lines of differentiated credit and debt repayments, and the concurrent consumer desires that keep these flows of money going: “Socialism never took root in America because the poor see themselves not as an exploited proletariat but as temporarily embarrassed millionaires” (Wright, 2004, p. 124). Teachers have had their identities stripped of their previous roles as guardians and proponents of civil society, or as the keepers of an essential knowledge to live a good life. Instead their roles have become merged with the over-riding concerns of financial capitalism, which primarily works from the perspective of the profit motive, and that reduces all activity under its aegis to calculable economic values representable as numerical, parallel to the multitude

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of companies on the stock exchange. *Quality* teacher rhetoric from governments is linked to human capital arguments and education entails the production of workers for increasingly volatile markets.¹ This article argues that to get to the bottom of the ongoing, global, reciprocating and ubiquitous processes of financialisation, in and through teacher education, we might consider teacher education as an *abstract machine* (Deleuze & Guattari, 1988), that, is as a future-focused, non-representational field of possibility. From this perspective, it does not represent or become fixed upon the *real* in the present but “rather constructs a real that is yet to come, a new type of reality” (1988, p. 142). The points of subjectification of teacher education, those who are ‘becoming teachers’ and imagining future careers for themselves as teachers within the education machine, are at its heart, yet they are also surrounded by, and part of, the machinery of financial capitalism, including how governmental institutions have become embroiled under its remit. Of course, one can imagine the situation as otherwise, and the illusionary, idealistic, other-worldly, sometimes regressive projections of financial capitalism are important parts of its functioning, which should not be overlooked in the analysis, and are an aspect of the problematic that is being addressed here.

This article looks for concrete routes out of the current situation, which escape the ways in which subjectivity is captured and turned into something else, ready to be demarcated as a flow in the financial capitalist setup. It draws upon concepts invented by Deleuze and Guattari (1983) that emphasize movement and interconnection, flows and blockages, in complex, unpredictable and contradictory contexts such as capitalism. The point of the application of concepts from Deleuze and Guattari is to open up the notion of teacher education, which is often understood as predictable and particularly amenable to regulation. This article suggests that schizoanalysis, an approach from Deleuze and Guattari (1983) that focuses on mapping the contradictory productions and flows of desire across multiple scales, allows the analyst to move between the micro and macro, and to consider fragments, moments and events, and is a potent methodology to resist the capture of subjectivity by capital, and to reconceive the processes of teacher education.

Capitalist Representation

The processes of capitalist representation are not a straightforward mixture of tendencies, or a mirroring effect according to Deleuze & Guattari (1983). Rather, capitalist representation works through the conjunction of ‘decoded flows’, that is as flows of desire are captured,

rewritten and re-executed by capital, creating new connections and turning meaning making and signifying inside out, producing 'empty shells' of things. The content of capitalist representation is made ready to be distributed and redistributed according to levels of capitalisation, and due to any concomitant power differentials involved with context and money. In the specific example of teacher education, the conjunction of decoded flows involves whatever pedagogical or learning concept is considered financially profitable at a given moment. These decoded flows include: recent calls by Mark Zuckerberg (2015) and others for the increased teaching and learning of computer coding; the plethora of financial literacy courses that are appearing worldwide (Chevreau, 2011); corporate demands for the production of *21st century learners* (Williams, Gannon, & Sawyer, 2013); and the general teaching and learning of and for *innovation*. These flows may entail using computer technology in new ways, promoting entrepreneurship, or in reducing all activity (including science) to a marketing effort to sell products. These entangled tendencies in teacher education, decode the practice and science of teaching and learning, and encourage the conjunction of educational flows to make a profit.

What is importantly left out of these often concrete plans for educational change inspired by financial capitalism; is the content and intentions of the teaching and learning experience, and consequently any value of the lessons beyond capital production or gain. One could ask in terms of the examples that have been enumerated above: The teaching and learning of computer coding envisaged is used for what purposes, if not primarily for an increase in social media capital and available labor for Zuckerberg's company amongst others? Although financial literacy programs might help populations to understand what debt is and to calculate it, they do nothing to stop families and individuals from going into debt in the first place, or to critique the conditions of capital that indicate no option other than debt, for example, if you want to own your own home, or to buy a new car, and hence consumerism continues as an unquestioned aspect of everyday life. The desired skills, dispositions and capabilities of the 21st century learner are those of the flexible, agile and expendable worker favoured by contemporary capital. The general tendency to teach self-reliant entrepreneurship, whether it is through the use of technology or otherwise, potentially reduces all adult activity to the thought of starting and running a successful company; all other possibilities for life are therefore negated and minimised in importance. The very act of wanting to become a teacher or scholar without entrepreneurial intentions, for example, to contribute to the wellbeing of society, to convey a love of learning, or to work with young

people, therefore suffers due to the calculations of financial capitalism. Desiring to become a teacher for these reasons is not amenable to being joined together with a flow of capital. Rather, teacher education is viewed as solely a means to convey information for the conjunction of the decoded flows that produce flexible, entrepreneurial workers, or for the idea of starting off freshly capitalised colleges, charter schools or tutoring businesses.

Capitalist representation concerns the augmentation of desire, and is at the same time a hollowing out of subjectivity, combined with the conjunction of decoded flows, as has been argued above. The paradox of capitalist representation is that these actions that centre on the effects of desire, result in a double movement, which is comprehensible as the tendency towards schizophrenia, and presents a circular questioning of the modes of representation of capitalism, just as they are, in fact, represented. The question of desire in capitalist representation is in part dealt with by Deleuze & Guattari (1983) in terms of *desiring-machines*, which is a strategic conceptual arrangement designed to disaggregate desire from subjectivity. Rather than the psychoanalytic framing of desire as lack located within the individual that blocks action or movement, desire in a Deleuzian sense is a productive, generative force or intensity that moves between bodies and that makes things happen. 'Desiring-machines' show how desire is not absolutely connected to our organic, sexual beings and libidos, but has become embroiled with and is part of the machinery that surrounds us and which we are *plugged* into in different ways at different times and in different contexts. Now, the concept *desiring-machines* is especially pertinent given the ways in which financial capitalism can reach into our choices, beliefs, bodies and desires, as every time we turn on the internet, go into an urban space, or watch the television, we are bombarded with marketing strategies designed to sell products and that play with and reconfigure our desires (Cole, 2005). The expression, *teacher-education-desiring-machines*, in the title of this article, designates the continually changing arrangements of desires for the students, teachers and teacher educators, the processes that pass through teacher education, and the ways in which all desires and processes in the teacher education formation are played upon and exploited by the regime of signs under financial capitalism. Rather than stasis and separation, the *desiring-machine* emphasises volatility, flows and interconnections beyond the individual.

Teacher education is represented in and by financial capitalism as a means to produce surplus value (profit), and teachers that serve this purpose. There is a continual pressure to make a profit in university schools of teacher education, which could be understood as the

(re)production of human capital through teaching and learning (both in terms of quantity and quality). However, this straightforward notion of how financial capitalism relates to and impacts on teacher education is complexified by the ways in which this relationship is represented by financial capitalism. For example, in universities new technology is often touted as a means to remedy shortfalls in teacher education, as face-to-face relationships are increasingly put under pressure through cost-benefit-analysis, and new communications technologies are seen as a means to enable new modes of virtual learning (Kemp et al., 2014). What is often left out of these discussions and discourses on technology, is the fact that the wholesale invasion of new technology into the very processes of *becoming a teacher* increases the likelihood that educational consumerism, or the advertising of the latest in learning technologies to expand the remit of financial capitalism, will be introduced and take hold amongst the teacher student community. Teaching and learning are shackled to software, hardware and the latest educational applications and packages.² In short, capitalist representation is about selling products, and any way to *reach the market* is acceptable on those terms, including the utter commercialisation of teacher education. The point of the construct, *teacher-education-desiring-machines* is to oppose and to resist the takeover of teacher education by financial capitalism in and through capitalist representation. It is suggested that one of the most effective ways to do this is through Deleuze & Guattari's (1983) method of schizoanalysis.

Schizoanalysis for/in Teacher Education

In contrast to psychoanalysis, which works with particular subjectivities and their possible neuroses, repressions and psychic proclivities such as the Oedipus complex, schizoanalysis approaches beings (i.e., consumers, parents, teacher education candidates, beginning teachers) as points of subjectification that form and reform within collective practice, which starts with the tendency in capitalism towards schizophrenia (Cole, 2015). This schizo tendency in capitalism takes impulses and desires, and empties them of their connection with reality, or any readily achievable goals. Rather, artificial dreams of unrealistic beauty, everlasting health, untold wealth and/or any associated advertising promise or lie, inundate subjectivity from birth, and are particularly pertinent with respect to understanding the formations of the emergent unconscious of children under financial capitalism. Schizoanalysis is more than a critical approach to the regimes of signs of financial capitalism, as it takes into account the unconscious, and is not merely a rational questioning

of the ways in which one is potentially controlled and conformed by the edits of financial capitalism. Rather, schizoanalysis is a serious attempt to understand and unravel the unconscious processes that are passing through us from birth, as we enter into entangled relationships with debt, capital, marketing strategies and the exploitation of surplus value for profit, or as Eugene Holland (1999) has suggested:

The critical task of schizoanalysis ... is to destroy the power of representation in all its many forms, including the Oedipus complex, the ego, religious and ethnic fanaticisms, patriotism, the debt to capital, and so on; the aim is to expunge belief from the unconscious altogether, to undo molar recoding as much as possible. (p. 97)

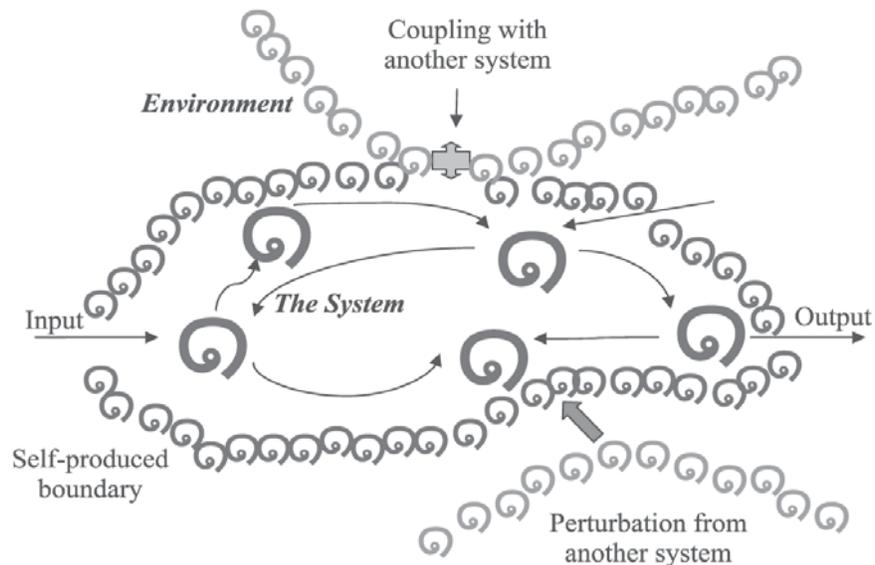
The problems with representation include pretensions to reflect or mirror reality, inclinations to abstraction and to hierarchies (or to *molar* forms rather than *molecular* flows), and its orientation to containment of forces, which for Deleuze and Guattari are always in motion. Belief is associated with representation according to Deleuze & Guattari (1983)—the purpose of schizoanalysis is to enable the flows of the unconscious, and to question any models of belief that stop these flows. With respect to the effects of financial capitalism, the model of the profit motive has set up a belief system that has been extended from simple ways to make to profit, such as buying something cheaply and selling on that product at an inflated price, to complex regimes of debt and financialisation, as were specifically revealed in the 2008 Global Financial Crisis (Cole, 2012). Alongside these complex regimes of finance, is the whole machinery of exploiting desire to fit in with and extend the ways in which financialisation works in everyday life, such as marketing and advertising, which makes escape from the entrapment of financial capitalism increasingly difficult. The trap for most of us working and living, becoming teachers, or employed as teacher educators, is encapsulated by the ways in which being mired in debt and being structured by the continual need for increased flows of capital, can lead to conservative, reactionary *becomings*, and to an aversion to risk taking in education and elsewhere. *Becoming* is a key term from Deleuze and Guattari (1983) that refers to an ontology or theory of being that is non-static and open to unexpected, hybrid amalgam. Schizoanalysis works in the opposite direction to the traps of financial capitalism, to firstly question the motives and belief systems of financial capitalism, and secondly to set the unconscious free. The question for this article and *teacher-education-desiring-machines*, is what does schizoanalysis specifically look like in teacher education? To help us to figure out the effects of the application of schizoanalysis to teacher education, it is worth examining a diagram on autopoiesis

which works in a parallel manner to schizoanalysis. Autopoiesis, referring to the production or creation (*poiesis*) of the self (*auto*), is a term borrowed from biochemistry that means systems that are capable of reproducing and maintaining themselves, such as mitosis. The originators of the term, Maturana and Varela, described autopoietic machines as those that are organized as “networks of processes of production of components which...through their interactions and transformations continuously regenerate and realize the network of processes (relations) that produce them” (1980, p. 78).

In Figure 1 *The System* represents teacher education, which is a mixture of students becoming teachers, teachers, schools, universities, teacher education faculties, and teacher education staff, and everything connected to these entities including curriculum, technologies, regulatory structures, practicum experiences, educational policy, and so on. The ways in which this System is impinged upon and changed from the outside, is protected by the autopoietic nature of the diagram above, represented by the multiple swirls, which are larger inside the System, and produce boundaries between the System and any other systems. Teacher education represented in this way, is more akin to a natural, organic system, more likely to couple with other systems, with autopoiesis at its heart, and having multiple flows accounted for and understood as these pass

Figure 1

Diagram of system interaction according to *autopoiesis* (Berger, 2013).



Issues in Teacher Education

through the System and as they interact with the multiple instances of autopoiesis within the system (including financial capitalism). Autopoiesis is not the same as schizoanalysis, though they share the characteristic of looping self-recreation, autopoiesis working on the biological and cellular level, schizoanalysis working on the unconscious level (Berger, 2013), to restructure the unconscious, and to alleviate the ways in which beliefs such as those associated with financial capitalism capture subjectivity. In the diagram above, the input is the student teachers, the outputs are the professionally qualified teachers. The swirls of capital include debt that student teachers incur while they study for their university in the form of deferred tuition fees (HECS)³ and their obligations to repay these to the government, and therefore present the urgency to achieve full time work in a *casualized* education employment market. The precise ways in which the schizoanalytical effects work will depend upon context, the cohorts of students, and the ways in which schizoanalysis is taken up and enacted by teacher education staff, and the resultant *robustness* of the schizoanalysis schema to make a difference in terms of effectively resisting financial capitalism as a fully interconnected, physical, material, affective and psychic set of processes. Schizoanalysis will come to resemble natural autopoietic processes, once it has been sufficiently accepted and used by the players in the system over time. In order to illustrate how to do this, this article will discuss a case study taken from the systems and subjective levels of teacher education in New South Wales (NSW), Australia.

Restructuring a Territory for Teacher Education

In Australia, student teachers entering the profession through university teacher education faculties are bombarded with a plethora of standards, directives, and numerous textbooks produced by multinational education companies such as Pearson Inc., all of which tell them what *becoming a teacher* constitutes and means, and these sources pass on professional edicts that direct the individual on how to act. In addition to this battery of things they should be doing, ways to modify their behaviours, and professional attitudes to adopt, students are living under the regimes of signs as designated by financial capitalism, as has been argued above. Financial capitalism is a global system, and therefore cannot be defined through its territory, for example as being exclusively Australian, but it does enact the process of deterritorialisation as expressed by Deleuze and Guattari (1983). Deterritorialisation means that previous territories are swallowed up and emptied out of their particularities, due to the ways in which financial capitalism works,

which is primarily to give everything a monetary value, and to analyse and manipulate these values through mechanisms such as international stock exchanges and financial markets. As has been mentioned, the deterritorialised flows of money work due to financial capitalism through conjunction, by becoming something else, and in becoming imbued within larger capital systems, where the desire for products and specific marketing strategies supersede personal consciousness and merge thought into [desire for x]. Students coming into teacher education courses will already have these thoughts and augmented desires, which will continue as they study, learn and become teachers. The critical question for teacher education faculties to ask is how to restructure and reformulate the decodifying thoughts and augmented desires of financial capitalism, so that the deterritorialisations of financial capitalism do not become an overwhelming or dominant constraint for student teachers. Mobilising critical thinking, interrogating taken for granted assumptions and practices, plugging into unexpected junctures, and actively seeking to generate subversive desires (for example, for social justice, for access to education for refugees and students in poverty) are part of the project.

As has been suggested above, the application of schizoanalysis induces an adjusted, *natural* system in and through teacher education, which is akin to *autopoiesis*, wherein the loops of thought-production and maintenance of the powers of the unconscious are critically enacted. Territories are (re)defined around teacher education through schizoanalysis in terms of enabling unconscious through-lines that are not representable as such, and do not act as a combined or stable model of (re)working for education. Rather, the introduction of schizoanalysis as a means to restructure teacher education does not act in a reductive or normative sense, in that there is never one way to do it or talk about it, but there are always a host of possible ways in which schizoanalysis can work on the micro and the macro levels. To begin on the macro level, the first way in which schizoanalysis works in teacher education is on the ways in which financial capitalism plays with, deterritorialises and augments desire. As has been mentioned above, the analysis of how financial capitalism works would be part of the induction level course for a new teacher education programme. Films such as the *Big Short* (Randolph & McKay, 2015), which depicts the ways in which financial capitalism worked up to and after the GFC in 2008, could be shown as part of the induction to teacher education, along with credible intellectual literature in the field that does similar work (e.g., McClanahan, 2016). Once students have a rudimentary understanding of how global financial capitalism works, how it might be implicated in education, and how these forces can be resisted if possible, they need to understand how their particular territories are being defined and redefined

through the ways in which financial capitalism relates to and refigures government.

In NSW, Australia, the federal or whole of Australia territory of teacher education is controlled by the Australian Institute for Teaching and School Leadership (Figure 2) and administered through state authorities. This Institute issues standards, training videos and teaching guidelines, and influences all teacher education faculties in Australia with its edits, including those in NSW. The introduction of schizoanalysis into the fold of teacher education provides a means to analysis, dispute, and resist if necessary, the ways in which such standards could act as immovable thought constraints (beliefs) on the unconscious flows, habits and actions of the teachers (see Figure 2).

As one can see from Figure 2 above, there is nothing implicitly wrong with such a set of standards. The action of schizoanalysis is to link these standards to the ways in which deep and connected psyche forces work in real time. Rather than an abstract set of rules and commands that every student teacher should follow, these standards can be seen as linking with memories, the imagination, the ways the student's bodies work, and the complicated, sometimes messy facts of life. The stress of somehow having to enact and live out all of these seven standards through their developing teaching practice is replaced with the natural, complicated, frequently spontaneous, and often accidental ways in which one learns how to complete these standards. For example, for secondary

Figure 2

Australian Institute for Teaching and School Leadership Teacher Standards. (AITSL, 2012)

Domains of Teaching	Standards	Focus Areas and Descriptors
Professional Knowledge	1. Know students and how they learn 2. Know the content and how to teach it	Refer to the Standard at each career stage
Professional Practice	3. Plan for and implement effective teaching and learning 4. Create and maintain supportive and safe learning environments 5. Assess, provide feedback and report on student learning	
Professional Engagement	6. Engage in professional learning 7. Engage professionally with colleagues, parents/carers and the community	

teachers Standard 4, *Create and maintain supportive and safe learning environments* involves understanding classroom management, and how best to work with teenagers in terms of their ongoing learning and collective educational experience (Cole, 2013). Schizoanalysis acts as a means to ‘depress’ the thought of classroom management. There is never one factor alone that determines the behavior of a class. Rather, there are always complicated social, cultural and collective forces in any context, which could be understood as the affects or affective working atmosphere of the classroom (Ibid.). The student teacher has to work with this atmosphere in some way, fit in with the thoughts and desires of the students, yet simultaneously be able to take the class on a learning journey (Ibid.). This skill will not be learned immediately, students with greater confidence and understanding of their cohorts will often fare best, others will have to be patient, and slowly work through a mode of becoming, wherein they are able to effectively function with teenagers in a school environment.

At the state level of territory in Australia are Departments of Education who have a powerful means for controlling what teachers have to do, because they employ all teachers in state schools. In NSW, the Department of Education has had a Quality Teaching Framework for several years (See Table 1).

Similar to the AITSL standards (Figure 2), the Quality Teaching Framework (Table 1) is not in any way unworthy. Rather, it could be said that this framework enacts a transcendent and frequently unrealistic scheme for action for beginning teachers. Schizoanalysis works in this context to connect students and staff to the real time, material impacts and complicated ways in which they may be able to enact this framework. Affects are again important in this context of material impacts, as the

Table 1
The NSW Quality Teaching framework. (DET, 2008)

	Intellectual quality	Quality learning environment	Significance
Elements	Deep knowledge	Explicit quality criteria	Background knowledge
	Deep understanding	Engagement	Cultural knowledge
	Problematic knowledge	High expectations	Knowledge integration
	Higher-order thinking	Social support	Inclusivity
	Metalanguage	Students’ self-regulation	Connectedness
	Substantive communication	Student direction	Narrative

way a lesson *feels* in embodied and amorphous ways often determines its outcomes (Cole, 2011). If the content, learning strategy or set of instructions is too difficult for any given lesson, on any given day, in any given context, the lesson will fall down, flows will be blocked and the lesson will not reach the quality index as stated by the framework. Further, if the lesson is pitched at too low a level of challenge for the students, the effect will be to alienate and convince the cohort that the teacher does not know how to work with them, or underestimates and infantilises them. *Quality* is therefore a result of understanding where the class sits in terms of maturation, expectations, motivations, including their affective states, and their positioning in the overall school system. These factors of success for beginning teachers are almost impossible to gauge before one sets foot into a classroom. Pedagogical encounters are, by definition, unpredictable and volatile spaces, where students and teachers come into being in multiple ways that cannot be contained in the framework descriptors (Davies & Gannon, 2009). The effects of schizoanalysis on teacher education are to change the ways in which frameworks such as the one above (see Table 1) territorialise students, staff and faculties, not as transcendental means to uniformly encourage high level intellectual work at all times, but as immanent thought experiments, locating new, transversal ways to connect the elements of the framework with the students' and staffs' abilities, development, and potentials at any given moment. Further, frameworks such as the one above cannot be subjectivised onto any one teacher or student, but must reflect the communal cognitive and affective forces in the particular context. There will always be differentials in these forces, which allow for and create new opportunities in teaching and learning, for example, with respect to knowledge of the working of financial capitalism, as has been argued throughout this article. Schizoanalysis is about making the elements of the framework above (see Table 1) real, complex, differentiated and inter-related aspects of cognitive work. In order to enhance understanding of what this might look like, *teacher-education-desiring-machines* will illustrate the approach with two research-based examples taken from the teacher education cohort at Western Sydney University.

Making a Difference with Individual Student-Teachers

As has been argued throughout this article, the experience of becoming a teacher under the conditions of financial capitalism can be an arduous and confusing affair. In the present day situation, students are psychically assaulted on all levels by commercial and money concerns, on top of which they have to learn how to become teachers in their cho-

sen secondary specialism. The research team took the straightforward methodological approach of conducting one-to-one, open-ended interviews with volunteer students about their first practical experiences of teaching under supervision in NSW schools. The interviewers allowed the conversations to go to places where the schizoanalytical intent of the research was clear (see two vignettes below).

Vignette One: Becoming a Spectroscope

The first vignette involves a high school science student teacher from China, who was doing his postgraduate teaching course and practical experience in NSW, Australia. Firstly, he spoke to the researcher about the differences between schooling practices in China and Australia, and how the teaching experience in China was based around a ‘stand and deliver’ model of pedagogy, and did not involve explicit considerations of classroom management. This stark difference between teaching styles in Australia and China had initially put the student off taking up teaching in Australia, because, in his mind with the memory of Chinese education, teaching was “boring.” However, the student had taken the step to enrol in the teacher education program, and discussed his first practical experience, which involved working in a district of Sydney with a high Social and Economic Needs (SEN) population:

Yeah, you know, students from the class had the expectation that Friday was their movie day. When I tried to do real science work [with] them, they were very disappointed.

The student recounted various instances of difficult and challenging behaviours, students who wouldn’t do the required tasks, others who displayed openly defiant and challenging attitudes to his pedagogy. However, instead of quitting, the student teacher began to experiment and to explore new and different ways to connect with the cohorts:

After checking with the supervising teacher, I tried to engage the class with the ABC Education online Science game, *Zoom*. I had a go at the game at home and it all worked well. However, when I got to the designated lesson time, I took the students to the computer lab and set up the game, after explaining the science topics. However, we soon realised that the computers at the school were not good enough. The students became very angry and frustrated because the game didn’t work properly. The lesson was a worse disaster than if I had just tried to do a normal lesson.

The student began to explain how he had changed during his first practical teaching experience in Australia. He realised that his voice, body posture, and pre-conceived notions of behaviour, attention, punishment and discipline, did not help him to engage with and become attuned to

the ways in which the high school classes worked. Rather, he came up with the idea of making a spectroscope with his year nine class:

I had the idea of making a spectroscope out of an old CD, toilet roll, cardboard and Sellotape. I spoke to the supervising teacher and he said *go for it*. After talking to the students a little, we went for it and made the spectroscopes together. After the first group had made one, and had got it to work splitting light, everyone else suddenly got very interested. I realised that the class needed hands on, practical work. They didn't want to listen to me speaking all the time, explaining concepts and facts. They wanted to do things—that changed everything.

In terms of schizoanalysis, the student had worked through representative beliefs about what he should do in the science class. He had considered and planned for the use of pre-packaged on-line educational resources and attempted to utilise the technology available in the school. Although he elaborated *the science topics* to students, the unfulfilled allure of a game instead of normal science made students *very angry*. He turns away from the capitalised forms of digital technology that are promoted in contemporary education to a low-tech experiment in repurposing waste materials to build a functional scientific instrument. Arguably, this is an anti-capital pedagogical move with profound effects on learning. *Becoming spectroscope* works in terms of being a mediating object between the teacher and the students. The sense that the teacher had come to the school with unrealistic expectations about school behaviour, and about what worked with the students, had been broken by the physical making of the spectroscope together. The Chinese student had remarked that several students had made a better spectroscope than him, and that had for the first time in his presence given them pride in their science work.

Vignette Two: Surrounded by Fire

The second student was a high achieving pre-service English teacher, who had grown up in the local area, and had completed her first practical teaching experience at a school in the Blue Mountains, NSW. She spent the first half of the interview discussing her background, and how it had frequently been communicated to her that taking up teaching as a profession was somehow “below her.”

You know, I did very well at school. I went to Sydney Uni. first but I didn't like it. I felt out of place, so I move to Western Sydney Uni., where I feel much more at home. All along people having been saying to me, “do you really want to go into teaching?” My lecturers have said that I might enjoy research, and I started doing the honours course, but it was so stressful that I dropped out. I actually really love teaching—this is what I wanted to do all along.

This student was extremely sensitive to everything that had happened to her. During her first practical teaching experience, the Blue Mountains area in NSW experienced the worse bush fires in twelve years, with over 65,000 hectares (160,000 acres) of forest and 200 houses destroyed. The student's practicum school was located approximately five kilometres away from one of the sources of the fire. On the day of the fire, the student's school was put in 'lockdown'. This is an emergency procedure which comes into effect only during days of crisis, such as those of the major bushfire, a hurricane, or terrorist attack. The fire started close to the school at 1.30 p.m., and the student emerged from lockdown at 7.30 p.m.

Lockdown at the school was a massive thing for me. Before that we were sort of tolerated at the school. We were well treated that is for sure, but we were only *praccies* (student teachers). After the lockdown, we were treated as part of the community, it was a huge change. I saw how teachers could save lives and keep the children from freaking out during the lockdown. There was no telephone reception in the lockdown. We were with teenagers who didn't know if they had a home to go back to, or if we were all going to be caught up in the fire and die. The fire came right up to the school fields, we could hear, see and smell it, at one point we were completely *surrounded by fire*.

In schizoanalytical terms, the experience of *lockdown* defines a way in which the often unconscious fears in the community are shared and articulated. Not knowing what is happening in any instant, yet having to share that moment with others, cuts through barriers and divisions in society. In that second, one is forced to act, and to deal with the ways in which fear can potentially cripple and defeat us. A schizoanalysis of this vignette, shows how non-human factors such as being surrounded by fire, can make an enormous impact on the developing thought processes and cognitive evolution of the student-teacher. Perhaps in response to those who thought teaching was below her capacities, the realisation that "teachers could save lives" along with her long-standing "love" of teaching recalibrates and reinforces her desire to become a teacher. Spatial, affective and corporeal elements intermingle in those moments.

Luckily, everyone came out of the school alive. Teachers and students walked to the local shopping centre, where the other local schools had been evacuated. I will never forget that walk, houses were burnt down, trees were still smouldering; there was the acrid smell of smoke lingering in the air. I felt closer to those other people in the street than I had ever felt before or after.

Conclusion

This article called *teacher-education-desiring-machines* has attempted to apply the principles of schizoanalysis to teacher education. This is an ongoing concern for the researchers involved with the project, which involves at least three interwoven foci taken from the work of Deleuze and Guattari (1983 & 1988):

1. Semiotics. The unconscious desires and ways to code and to understand the world within the context of financial capitalism are always changing, and being modified as financial capitalism itself changes with new technologies and with merging global populations. This ongoing concern for “reading, reading the world, self and other” (Masny & Cole, 2009, p.1) is a form of semiotics, wherein we are concerned as educators, and as teacher educators to understand the complex regimes of signs under financial capitalism that could potentially submerge us.

2. Cartography. The application of schizoanalysis as has been described in this article is about making maps, both of innovative, interconnected, educational practices, and as a mode of understanding the non-linear developments of and in teacher education as has been described in this article. Clearly, the conceptual mapping that schizoanalysis requires is not of a straightforward, representative kind, but requires *getting below the surface* of what is happening in teacher education today. This article is offered as an example of such cartographic work.

3. Ecological pedagogics. The ecological aspect of the work of schizoanalysis has not been emphasized in this article, but is an undisputed and essential part of intellectual acrobatics that happens due to the application of Deleuze and Guattari (1983 & 1988) to education. The vignettes in this article, together with the working with territory and representation, all have the undermining of the combined and unsullied human subject at their core. Further, the connection between schizoanalysis and autopoiesis functions in the domain of taking educational studies away from a human dominated (and prejudiced) affair, and into a more fecund *natural* space (however messy that space turns out to be).

Notes

¹ Government policies in Australia include state level policies such as Great

Teaching, Inspired Learning (New South Wales) and Great Teachers=Great Results (Queensland) and a range of national policies and regulatory apparatus that are reshaping teacher education and progression into the profession. These have increased requirements for entry and length (and cost) of courses, however market forces and the advantages of a *casualized* workforce mean that teacher education graduates are increasingly unlikely to find work with recent media reports that only 6% of graduating beginning teachers obtained fulltime employment in the large government school sector in the largest state in 2016.

²For example, previous government policy in Australia guaranteed notebook computers to every child at designated year levels enabled by partnerships with corporations. Provision of notebooks to teacher education candidates, and then iPads to all students by our university has created a market differential in competition for enrolments and reshaped teaching and learning around technology and corporate agreements.

³In Australia, most domestic university students defer payment of tuition fees and accrue Higher Education Contribution Scheme (HECS) debt, to be repaid in the indefinite future through tax debits. For teachers completing undergraduate and postgraduate qualifications, HECS debt can average close to \$30,000 and take around a decade of full time work to pay off, although current government reforms are likely to increase this cost and length of time <<http://www.whatwillmydegrecost.com.au>>.

References

- Australian Institute for Teaching and School Leadership (AITSL). (2012). Australian Professional Standards for Teacher. Web page found at: <http://www.aitsl.edu.au/australian-professional-standards-for-teachers>
- Berger, E. (2013). How does Schizoanalysis work, or, How do you make a class operate like a work of art? Online blog found at: <https://deterritorialinvestigations.wordpress.com/2013/05/15/how-does-schizoanalysis-work-or-how-do-you-make-a-class-operate-like-a-work-of-art/>
- Chevreau, J. (2011). Financial literacy: Does the industry really want us to be educated? *Financial Post*. Located at: <http://financialpost.com/personal-finance/Financial+literacy+Does+industry+really+want+educated/4266178/story.html>
- Cole, D. R. (2005). Reading in the future: literacy and the time of the internet. *Reconstruction*, 5(2) EJ, located at: <http://eprints.utas.edu.au/2377/1/cole.pdf>
- Cole, D. R. (2011). The actions of affect in Deleuze—Others using language and the language that we make ... *Educational Philosophy and Theory*, 43(6), August, 549-561.
- Cole, D. R. (Ed.). (2012). *Surviving economic crises through education*. New York, NY & Geneva, Switzerland: Peter Lang Publishers.
- Cole, D. R. (2013). Affective literacies: Deleuze, discipline and power. In I. Semetsky & D. Masny (Eds.), *Deleuze and education* (pp. 94-112). Edinburgh, Scotland: Edinburgh University Press.
- Cole, D. R. (2015). Strange assemblage. *Portal: Journal of Multidisciplinary Inter-*

- national Studies*, 11(2). DOI: <http://dx.doi.org/10.5130/portal.v11i2.3200>
- Davies, B., & Gannon, S. (Eds.) (2009). *Pedagogical encounters*. New York, NY: Peter Lang Publishers.
- Deleuze, G., & Guattari, F. (1983). *Anti-Oedipus: Capitalism and schizophrenia* (R. Hurley, M. Steem & HR Lane, Trans.). Minneapolis, MN: University of Minnesota Press
- Deleuze, G., & Guattari, F. (1988). *A thousand plateaus: Capitalism & schizophrenia II* (B. Massumi, Trans.). London, UK: The Athlone Press
- Department of Education and Training (DET). (2008). Quality teaching to support the NSW Professional Teaching Standards. Pdf. Found at: <https://dei.eduone.net.au/ashford/DEPASCSCURRICULUM/HSIE%20UNIT/Quality%20Teaching%20Framework.pdf>
- Holland, E. W. (1999). *Deleuze and Guattari's Anti-Oedipus: Introduction to schizoanalysis*. Abingdon, Oxon, UK: Routledge.
- Kemp, A. T., Preston, J., Page, C. S., Harper, R., Dillard, B., Flynn, J., & Yamaguchi, M. (2014). Technology and teaching: A Conversation among faculty regarding the pros and cons of technology. *The Qualitative Report 2014*, 19, Article 6, 1-23. <http://www.nova.edu/ssss/QR/QR19/kemp6.pdf>
- Maturana, H., & Varela, M. (1980). Autopoiesis and cognition: The realization of the living. In R. Cohen & M. Wartofsky (Eds.), *Boston studies in the philosophy of science*. Dordrecht, Germany: D. Reidel Publishing Company.
- Masny, D., & Cole, D. R. (Eds.). (2009). *Multiple literacies theory: A Deleuzian perspective*. Rotterdam, The Netherlands: Sense Publishers.
- McClanahan, A. (2016). *Dead pledges: Debt, crisis, and Twenty-First-Century culture*. San Francisco, CA: Stanford University Press.
- Randolph, C., & McKay, A. (2015). *The big short* [film]. Los Angeles, CA: Regency Entertainment & Plan B Entertainment.
- Williams, C., Gannon, S., & Sawyer, W. (2013). A genealogy of the future: Antipodean trajectories and travels of the 21st century learner. *Journal of Education Policy*, 28(6), 792-806.
- Wright, R. (2004). *A short history of progress*. Toronto, Ontario, Canada: Anansi Press. [Wright attributed this quote to John Steinbeck]
- Zuckerberg, M. (2015). Online quote about teaching coding. Located at: <https://code.org/quotes>