

Article

Teaching and Learning with Matter

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Abstract: Through bodies with matter, we are always making, performing and learning, so material pedagogy(ies) are embodied; they are intra-actions between bodies and matter, where with matter, bodies are being taught and are learning. But as learners, we are not always conscious of this intra-action or able to easily articulate it. The intention of this paper is to explore and share the creative acts of learning and teaching of bodies with matter and between spaces, where matter teaches us what it can and cannot do—a material pedagogy. Underpinned by new materialist scholarship, where socio-materiality is emphasised, this paper focuses on the relationalities of learning and teaching so that we can become conscious of our ways, materials and spaces of pedagogy. From this, we can then ensure that we explicitly acknowledge and support the creation of these places to enable a sustained pedagogic engagement for all learning environments that can be transformative and emancipatory.

Keywords: new materialism; embodiment; critical pedagogy; embodied pedagogy; material pedagogy

1. Introduction

I propose and develop a new materialist theory of pedagogy in which the intra-actions of bodies and matter are conceived as pedagogic—an embodied and material pedagogy. In this paper, I examine and explore how materials teach us and how we learn through and with the body and share the entangled threads of my ongoing praxic collaborations of embodied art practices, pedagogies and research ([Page forthcoming a](#)). This socio-material praxis (practice with theory and theory with practice) is conceived as poietic in that it is flexible, dynamic and open, continually becoming and not a thing, object or outcome but spaces/places of possibilities and potential and is underpinned by new materialist scholarship after [Barad \(2007\)](#), [Braidotti \(2000\)](#), [Bolt and Barrett \(2014\)](#), where the social with the material is emphasised. The focus of this paper is not only on ‘individual’ practices but the relationalities of learning, bodies/sensation and memory—to become conscious of our ways, materials and spaces of pedagogy to ensure we acknowledge, support and sustain pedagogic engagement in all formal, such as universities and art colleges, and informal, i.e., community arts, etc., learning environments. This scholarship indicates that these diverse places and ways are key in addressing the challenges, opportunities and possibilities we face as artists, educators and learners but are also essential in pushing the what and how of contemporary art, art education and pedagogy.

2. New Materialism and Pedagogy

New materialism posits matter as agentic, indeterminate, constantly forming and reforming in unexpected ways ([Coole and Frost 2010](#)). Such a perspective abandons any idea of matter as inert and subject to predictable forces. Matter is always becoming. Matter ‘feels, converses, suffers, desires, yearns and remembers’ and, since ‘feeling, desiring and experiencing are not singular characteristics or capacities of human consciousness’ ([Dolphijn and Tuin 2012](#), p. 16), new materialism offers a

redefinition of liveness and human–non-human relations. In order to incorporate such a perspective, Barad (2007) explains that

what is needed is a robust account of the materialization of *all* bodies—‘human’ and ‘nonhuman’—including agential contributions of all material forces (both ‘social’ and ‘natural’). This will require an understanding of the nature of the relationship between discursive practices and material phenomena; an accounting of ‘nonhuman’ as well as ‘human’ forms of agency; and an understanding of the precise causal nature of productive practices that take account of the fullness of matter’s implication in its ongoing historicity. (p. 66)

Bodies and things are not as separate as we were once taught, and their intra-relationship is vital to how we come to know ourselves as humans and interact with our environments. The body is pivotal to new materialism, it is a complex intra-action (Barad 2007) of the social and affective, where embodiment is a process of encounters, intra-actions with other bodies (Springgay 2008). Thinking about matter *matters*—if bodies and things are produced together, intertwined, then ‘things’ and how they act on bodies are co-constitutive of our embodied subjectivity¹.

New materialism (Alaimo and Hekman 2008; Barad 2007; Braidotti 2013; Bolt and Barrett 2014; Coole and Frost 2010; Hekman 2010) calls on theorists to revisit a Marxist emphasis on materiality in research; it calls for an embodied, affective, relational understanding of the research process. As a way of exploring the entanglement and co-constitution of matter and subjectivity, new materialism is a methodology, a theoretical framework and a political positioning that emphasizes the complex materiality of bodies immersed in social relations of power (Dolphijn and Tuin 2012). Inventive methods (Lury and Wakeford 2012), including arts based (Jagodzinski and Wallin 2013), visual (Pink 2007; Rose 2012) and embodied/sensory methods (Ingold 2013; Pink 2009; Page 2012; Page forthcoming a; Page forthcoming b) are increasingly being mobilized to explore the agency of matter and advance vitalist frameworks. Moving beyond the problem-focused approach that focuses (Lury and Wakeford 2012) engaging intervention into methods, this paper works the intra-actions of theory with practice to position the agency of matter as pedagogical in its resistance. Matter can teach us through resisting dominant discourses, and we can learn new ways of being.

At the beginning of every academic year when we have new students beginning their higher education studies, undergraduate or postgraduate², there is a palpable level of excitement and anxiety about learning in a new environment and learning new and different ways, things and ideas. However, it is also interesting that at this time of newness and beginnings, many assumptions can be made regarding knowledge, particularly when it comes to language and ideas. Usually, after the first week of lectures, seminars and discussions, I ask my students to critically reflect on what has been interesting and what they have learnt. I then ask them to be specific and more focussed regarding their learning: moving beyond the general to the what, the how and the why. Most of the time, students talk about pedagogy, a word/term that comes up again and again and again in education. I ask them, ‘But what does that word mean? What do you mean when you use that word? What are your professors and lecturers talking about when they teach you about pedagogy?’

Generically, pedagogy can be defined as the ‘theory and instruction of teaching and learning’ that comes from the Greek ‘to lead the child’ (Pearsall 1999, p. 1051). But this particular definition of

¹ After Deluuz (1995, p. 99), subjectivity is conceived as ‘a specific or collective individuation relating to an event’ and are activated differently in various machinic arrangements.

² I teach at Goldsmiths University of London in the Department of Educational Studies Centre for the Arts and Learning (CAL). CAL is a practice research centre where knowledge is conceived as something that is co-constructed through practice with theory and theory with practice. The aims of CAL are to enable, explore and curate critical processes of socially engaged praxis that effect social change through a variety of ways and means, working the between of practice and pedagogy. This is achieved through our teaching programmes, including undergraduate, initial teacher education, MA and PhD, as well as our public research seminars, conferences, publications and funded research projects.

'leading the child' resonates with Freire (1970) concept of 'banking', where teaching and learning are conceived as processes of transmission, where 'students are regarded merely as passive consumers' (hooks 1994, p. 40). However, in opposition to this conception, Freire (1970) and hooks (1994) critically conceive of pedagogy as a 'union of the mind, body and spirit, not just for striving for knowledge in books, but knowledge about how to live in the world' (15). Using this conception, pedagogy can then be understood as an entanglement of the body with the world (social and material) to learn from but one that also teaches. So pedagogy can then occur everywhere, not only in the classrooms, lecture halls, studios etc., and it can also be personal/individual and/or public/collective (Springgay et al. 2008).

Ellsworth (2005) states that 'specific to pedagogy is the experience of the corporeality of the body's time and space when it is in the midst of learning' (4), and with a focus on natural history, Barad (2007) reminds us,

In an important sense, both the special and general theories of relativity are a part of classical physics' ... and this comes to matter because 'Reality is composed not of things-in-themselves or things-behind-phenomena but of all things-in-phenomena. The world is a dynamic process of intra-activity and materialization in the enactment of determinate causal structures with determinate boundaries, properties, meanings, and patterns of marks on bodies. This ongoing flow of agency through which part of the world makes itself differentially intelligible to another part of the world and through which causal structures are stabilized and destabilized does not take place in space and time but happens in the making of spacetime itself. (p. 140)

Therefore, body(ies) and the practices of embodiment is/are core to our ways of knowing, but they are also fundamentally entangled with matter. This embodied entanglement with matter is pedagogic.

Embodied Pedagogy

Exploring the porous nature of bodies and their co-construction through and with systems of meaning, Blackman (2008) maps a selection of concepts (and constructs) of the body, including regulated and regulating bodies, communicating bodies, bodies and difference, lived bodies and the body as enactment. Blackman (2008) rejects naturalistic views of the body 'as entities which are singular, bounded, molar and discretely human in action' (p. 131), arguing rather that bodies, knowledge systems, sociability and matter are co-constructed and that 'the psychological, biological and social are discrete entities that somehow interact' (p. 131).

Bourdieu (1990) developed the concept of habitus and bodily hexis, where all embodied practices and experiences are constructed as profoundly influenced by culture, and these include practices such as greetings, tonalities of speech and speech recognition. These can all be taken for granted because they are specific to particular places and also because we are not conscious of these embodied learnings as we grow up. Bourdieu (1990) suggests that this is because habitus is produced by a hidden or implicit pedagogy rather than being the product of conscious teaching:

One could endlessly enumerate the values given body, made body, by the hidden persuasion of an implicit pedagogy, which can make a whole cosmology through injunctions as insignificant as 'sit up straight' or don't hold your knife in your left hand. (pp. 69–70)

But, Bourdieu (1990) failed to acknowledge and examine the learning of new and different habitus in earlier writings, maintaining that habitus is static, 'a product of history' that has 'constancy over time' (p. 54) and 'permanence' (p. 56). In recent writing, Bourdieu (2000) does describe habitus as dynamic, stating that 'new experiences, and especially education, have the potential to alter the habitus by raising to consciousness aspects of the old habitus' (p. 191). This new acknowledgement of habitus as conscious is in direct contrast to Bourdieu (1990) previous assertions that habitus is not 'consciously conceived'. However, Pink (2009) and many other scholars (Ingold 2000; Downey 2005, 2007) maintain that the learning should be understood as coming from embodied pedagogies.

Our ways of knowing and learning emerge with and through our embodied participation in the socio-material world, an embodied pedagogy. So we learn and relearn through and with the everyday practices of the body (Page forthcoming b). But instead of dividing the body into practices and knowing, following Merleau-Ponty (1962), I position the body not as a source of experience and activity but as a source of knowledge. That is, 'the customary body' (p. 82) or the knowing body but the knowing body is also a source of memories, therefore it is also the remembering body. Consequently, through our intra-actions with the socio-material world, we learn through individual and collective embodied practices, perceptions and memories.

The main premise of Merleau-Ponty (1962, 1963) work is the lived body. For Merleau-Ponty (1962), 'the lived body is our general medium for having a world' (p. 146), this is because it has 'corporeal intentionality' (p. 387). This is where the lived body intra-acts with the socio material world and is 'an intentional arc binding us to the life world we inhabit, replacing the Cartesian mind body dichotomy' (p. 136). The lived body is therefore 'the natural subject of perception' (Merleau-Ponty 1962, p. 208); however, this perception goes beyond vision because perception is achieved through and of the body, and sensation is at the centre of human perception. Ingold (2000), drawing on the ideas of Merleau-Ponty states

that the eyes and ears should not be understood as separate keyboards for the registration of sensation but as organs as a whole, in whose movement, within an environment, the activity of perception consists. (p. 268)

Like Whitehead (1926), Merleau-Ponty (1962, 1963) maintains that perception is not just a mental or psychological effect, it is the body's orientation in the world and that there is a symbiotic relationship between the act of perception and the context of the perceiver or, I contend, an entanglement after Barad (2007). Merleau-Ponty (1962) premise of perception enables us to understand that our embodied knowledge is entangled with the socio-material world; it is an intra-action. Gibson (1966), an ecological psychologist, also places the body at the centre of perception.

Gibson (1966) conceives that the body is a perceptual system that 'emphasises the interrelationship between the different senses ... in perception and the integration of sensory bodily and mental processes' (Rodaway 1994, pp. 19–20). Similarly, the anthropologist Ingold (2000) places perception at the centre of his research and further develops Gibson's work through the premise that perception is not the achievement of a mind in a body, but of the organism as a whole in its environment, and is tantamount to the organism's own exploratory movement through the world (p. 3).

Ingold (2000) also maintains that

the perceptual systems not only overlap in their functions, but are also subsumed under a total system of bodily orientation ... Looking, listening and touching therefore, are not separate activities, they are just different facets of the same activity: that of the whole organism in its environment. (p. 261)

However, embodied perception does not occur in a vacuum. The anthropologist Howes (2003) is critical of the theories of Merleau-Ponty (1962) and Gibson (1966), maintaining that they do not explicitly acknowledge the bodies with specific socio-material place/world. Howes (2003) maintains that these theories are abstracted, that research attuned to embodied perception cannot be achieved acontextually, that there is a need to 'elicit the sensory models of those who you are studying' (pp. 49–50) and that 'without some sense of how the senses are culturally attuned, there is no telling what information the environment affords' (Howes 2005, p. 144).

I would argue that even though Merleau-Ponty (1962, 1963) and Gibson (1966) premise does not acknowledge the specificity of the socio-material world, it does enable us to learn that perception is embodied and entangled with socio-material world because 'As places animate the ideas and feelings of persons who attend to them, these same ideas and feelings animate the places on which attention has bestowed' (Basso 1996, p. 53). As Whitehead (1926) suggests, the body is an active subjective participant in this embodied perception:

You are in a certain place perceiving things. Your perception takes place where you are, and it is entirely dependent on how your body is functioning. But this functioning of the body in one place exhibits for your cognisance an aspect of the distant environment, fading away into the general knowledge and there are things beyond. If this cognisance conveys knowledge of a transcendent world, it must be because the event which is the body unifies in itself aspects of the universe. (p. 92)

This premise of active participation focuses on the body as a 'total event' (Whitehead 1926, p. 73), as embodied practices that takes us into place and enables learning. As Manning (2009) explains, sensing and feeling are acts or events that matter:

A body ... does not exist—a body is not, it does. To sense is not simply to receive input—it is to invent ... Sense perceptions are not simply 'out there' to be analyzed by a static body. They are body-events [where] bodies, senses, and worlds recombine to create (invent) new events. (p. 212)

So if we think of these 'total events' as the way that matter teaches us and how we learn with matter, or how matter comes to matter, we can see that Whitehead (1926) theorises bodies as the catalyst of pedagogy. This is because bodies are conceived as not passive, objective perceivers they are the practices of senses and feelings that inform us, teaching us about current but also past place/world, what Whitehead called 'prehensions',

the basic, extrasensory awareness, or grasping, that all experiences have of all earlier experiences. One might call it the super intuition on which all conventionally recognised extrasensory perception and sensory perception are built. (Anderson 2000, p. 1)

These bodily prehensions involve the 'repetition' of the world, and it is through these bodily prehensions 'that the treasures of the past environment are poured into living occasions (events)' (Whitehead 1926, p. 339). Manning (2009) research on touch explains how Whitehead (1926) prehensions are embodied in that

we sense on top of senses, one sense experience always embedded in another one: cross-modal repetition with a difference. We conceive the world, not through a linear recomposition of the geometric vectors of our experience, but by the overlapping of the folds of sense-presentation emerging alongside pastness. (p. 215)

It is then through embodied pedagogy (perception with memory) with the socio-material world that we learn.

Just as the body can be conceived as the knowing body, I assert that it can then also be conceived as the source of memories, and so it is also the remembering body. As hooks (2009) states:

We are born and have our being in a place of memory. We chart our lives by everything we remember from the mundane moment to the majestic. We know ourselves through the art and act of remembering. Memories offer us a world where there is no death, where we are sustained by rituals of regard and recollection. (p. 5)

However, I do not want to focus solely on individual practices but the relationalities of matter with bodies, as stated by Haraway (2003), who explains, 'Through their reaching into each other, through their 'prehensions' or graspings, beings constitute each other and themselves. Beings do not preexist their relatings' (p. 6). Connerton (1989) work on collective memory indicates that 'social memory is embedded in the performativity of commemorative ceremonies' (p. 4) in which bodies are central. Connerton (1989) maintains that through the repeated performance of acts such as walking, journeying, ceremonies and rituals groups, communities and cultures can share embodied memories or, as Seremetakis (1994) calls them, 'mediation on the historical substance of experience' (p. 7).

Seremetakis (1994) maintains that these embodied memories are not fixed in repetition but are continually reconstituted through the practices of bringing the past into the present. They then become an inextricable element in our ways of learning and making just like Whitehead (1926) prehensions, Manning (2009) folds of 'sense-presentation emerging alongside pastness' (p. 215) and Barad (2007) concept of memory:

Memory does not reside in the folds of individual brains; rather, memory is the enfoldings of space-time-matter written into the universe, or better, the enfolded articulations of the universe in its mattering. Memory is not a record of a fixed past that can ever be fully erased, written over or recovered (that is, taken away or taken back into one's possession, as if it were a thing that can be owned). And memory is not a replay of strong of moments, but an enlivening and reconfiguring of past and future that is larger than any individual. Re-membering and re-cognizing (sic) do not take care of, or satisfy, or in any way reduce one's responsibilities; rather, like all intra-actions, they extend the entanglements and responsibilities of which one is part. The past is never finished. It cannot be wrapped up like a package, or a scrapbook . . . ; we never leave it and it never leaves us behind. (p. ix)

In other words, we fold the past back into the present every moment as we encounter 'the now' through our embodied histories and embodied pedagogies with matter.

3. Material Pedagogy

As I stated previously, through bodies with matter, we are always making, performing and learning. So I put forward that we learn through and with embodied histories and pedagogies but also with matter. It is the intra-actions, the between of bodies and matter that is pedagogic, as ceramic artist De Waal (2011) explains:

Centering the clay, bringing the small ball into perfect reactivity for throwing, involved a ripple of different movements from hand and wrist, an inclination in the head and neck a slight tautening in the shoulders. It was . . . learning that I could not articulate. (p. 1)

This creative act of learning, of body with matter (clay, wheel, water), is what van der Tuin (2014) asserts is an example of Barad (2003) practices of knowing in being (p. 262). Explaining the narrative of sculptor Souriau, van der Tuin (2014) explains that through the relationships of the clay, the person, in the practice of working with, 'the hand, the thumb, the chisel that a statue comes about' (p. 263) or in the case of de Waal (hand with wrist with head with neck with shoulder with clay) learning comes about.

From my own experiences with clay and learning to throw on a wheel, I learnt, I just knew when I was 'pulling the clay' the point just prior to the collapse of the clay. Through and with my body, I am learning the feel of the clay, adjusting the speed of the wheel, the amount of water I need to ensure slip, but not too much, and the amount of pressure and play of clay with my fingers, hands, arms, shoulder, back. The matter—the clay, the wheel, the water—is teaching me what it can and cannot do, how far it can be pushed and pulled. The between of my body with the matter of the clay, the wheel, the water wherein the matter teaches us and we are learning what it can do and what it cannot do—an embodied but also a material pedagogy.

Teaching and art making practices are modes of thought already in the act (Hickey-Moody and Page 2015) and so contemporary arts practices call us to think anew, through remaking the world materially and relationally. Building on this ethos of practice as thought already in the act, this paper contributes to the increased attention being paid to matter and creativity in social sciences and humanities research (van der Tuin 2011) and the often associated Deleuzian-informed methodologies (Coleman and Ringrose 2013; Springgay et al. 2008). Amongst other things, these approaches are brought together by a shared belief in the transformative capacities (or 'pedagogy') of matter. Such research practices posit affective, machinic, enfolded, vital approaches to research

and learning in ways that embody ideas developed in Continental philosophy (Ahmed 2006; Whitehead 1926; Heidegger 1962) and, specifically, through the work of Deleuze and Guattari (Deleuze and Guattari 1987).

As stated previously, embodied material pedagogies are just not concerned with describing individual sensations/perceptions and memory, nor individuals' pedagogy. This is because these ways of learning and teaching are not made and/or performed in isolation—they are relational, collaborative and critical. Wenger (2005) developed various theories of learning, including 'knowing in practice' (p. 141) and the 'experience of knowing' (p. 142). Knowing in practice was originally conceived by Lave and Wenger (1991) as 'situated learning', where learning is no longer a passive process of absorbing factual information (Freire 1970) but is instead a social and collaborative process whereby theory is entangled with everyday practice with others. These 'communities of practice' (Wenger 2005) are based on apprenticeship communities and enable a way of understanding how practice(s) is/are learned, identities established and knowledge formed and reproduced. However, the situating of this learning does not mean it is only specific to a particular place and time (Harris 2007). This is because these collaborative ways of learning are dynamic in bringing into being shared socio-material knowledge that can then be learned, taught, recreated and developed by the community culture as it inducts new members.

This is demonstrated by my ongoing research and pedagogy with students in higher education in which students communicated that sharing practices and their histories with fellow students impacted on their emerging artistic identity and also transformed their material skills, knowledge, understanding and confidence (Page et al. 2011). This is because the students were together able to 'negotiate new meanings' (Wenger 2005, p. 226) and learn together. Consequently, through the intra-actions of the social with the material, pedagogy is continually being made and remade. Hyde (2007) explains this pedagogy through highlighting

the excitement of feeling part of the creative process, with the ability to begin to locate my work within critical theory and contemporary practice and making, making together . . . moving from an isolated position on the periphery of the community towards feelings of inclusivity within the centre of a group of practitioners. (p. 298)

My interest in this praxis came through my own artist/researcher/educator entanglements of practice with pedagogy and my wanting to question and explore through embodied, material and collaborative methodologies with my students, where we make as process of encounters together, i.e., intra-actions with other bodies/materials. Braidotti (2000) asserts that the 'enfleshed Deleuzian subject . . . is a folding-in of external influences and a simultaneously unfolding outwards of affects . . . So a mobile entity, an enfleshed sort of memory that repeats' (p. 18). In other words, with students/learners we make a pedagogic methodology that is enabled through the 'repetitions' or practices of bodies with matter/materials, so then we, individually and collectively, can construct, perform, relate, know, teach and learn (Page 2012). In researching and learning 'with', we are, together, exploring, questioning and attempting to map the practices of bodies with matter and learn who we are, where we are and also how we are as artists, learners, teachers and researchers (Page forthcoming a).

An example of this is when, over the course of three weeks, I asked undergraduate students to 'consciously engage' in a journey they do regularly, i.e., to and/or from work, university, family, etc. Through 'conscious engagement', students pay attention to the sensory—what they are feeling, what they are seeing, hearing, tasting, touching, etc. The students 'collected' writings, notes, photographs, video, recordings, objects/things/materials on/from their 'journey'. These materials were then brought to a workshop, where the students began to 'play' with and curate but also share their materials and embodied experiences. This technique³ attempts to support and enable questioning,

³ Springgay (2015) asserts that new ways of researching be termed 'techniques' rather than 'methods' or 'tools' as techniques are processual, emergent and continually reinvent themselves.

exploring and understanding through mapping the embodied ways we understand self with place(s). It is the mapping of these intra-actions, of place with self, the action between, that matters. This praxis is conceived as poietic in that it is flexible, dynamic and open, continually becoming and not a thing, object or outcome but spaces of possibilities and potential for making, learning and research. It is an emergent technique for understanding new materialist thought, where the workshop/studio can become an experimental space for putting new materialist ideas to work and for reflecting on whether and how these practices can open up ways of learning, making and researching. Where these practices enable a making of thoughts and concepts matter/material and learning, together, we can reflect on the processes of materialisation and how matter may be materialised differently through iterating the 'same' materials but also through distinctive individual and collaborative artistic practices and processes.

Through focussing on the between and sharing, this learning and developing relationships to make a community of praxis students have communicated that this process has enabled a disruption in their understanding of learning as learning is not a passive process nor about the acquisition of knowledge but is 'a union of the mind, body and spirit, not just for striving for knowledge in and understanding from books, but knowledge about how to live in the world' (hooks 1994, p. 15).

This is great, I love learning this and this way is really different. It's not about what I just learn here in these four walls and it's just for here and y'know to get my degree. It's about everything here and out there, my everyday real world stuff all together. (Undergraduate student, author's personal notes and observations)

So an embodied and material pedagogy enables not only ruptures, disruptions of higher education teaching and learning but also opens spaces for questioning, whether that is of self, those within the community of praxis or outside the community, and so there is punching through into new learning spaces of potentials.

This practice of rupture and the entanglements of all these phenomena—human, non-human, social, physical, material and immaterial or what Bolt (2014) calls a 'mingle and mangle' (p. 3), is the ontologically inseparability of intra-acting agencies' (Barad 2007, p. 338). Or what Barad (2007) calls intra-action, which is the movement generated in an encounter of two or more bodies in a process of becoming different, 'the notion of intra-action recognizes that distinct agencies do not precede, but rather emerge through, their intra-actions' (p. 33).

In other words, it is not about the subject or the object but their entanglement—the event, the action between, not in-between, is what matters. Therefore, not only are we always with bodies, we are always with matter. So not only do we—the learners and teachers—make matter and meaning, it also makes us, we are entangled, co-implicated in the generation and evolution of knowing and being. Just as Freire (1970) states,

the teachers-of-the-students and the students-of-the-teachers cease to exist and a new term emerges; teacher-student with student-teacher, the teacher is no longer merely the one who teaches, but the one who are themselves himself [sic] taught in dialogue with the students, who in turn while being taught also teach. They become jointly responsible for the process in which all grow. (p. 80)

This can then results in an intra-action of the materialities of learner, teacher being continually renegotiated, in collaboration, and this then leads to making, teaching and learning in new and different ways and places

It was only through Mary sharing and teaching me her ways of knowing and making and with my own personal experiences that I came to know and understand who I am as artist learner but it is really about where I fit, my confidence in what and why I am learning this. (Unpublished research notes/audio)

And together, a 'shared place of discovery and learning is created' (Page 2012) and ultimately recreated or remade.

Therefore, through this pedagogic event, we are all learning—we are teaching each other but also learning from each other that is structured on our shared embodied and material knowledge, understanding and practicing, our 'local curations' of learning that enables little leaps into the unknown (Atkinson 2011, p. 11). But, what we are also learning is how these ways and places are embodied with wider, global discourses and power relations. As a postgraduate initial teacher education student commented,

I need to do it this way; shifting and moving furniture, organising my space, preparing materials, doing the making before the lesson. Because what I am actually doing is learning about what and how the kids are best going to learn with these materials in this space. It's my way, it gives me clarity and lets me learn so I can teach. But y'know it also lets me work out where this all fits with the all of the other stuff that goes on. Y'know, all of the noise it stops me getting lost within all the government official stuff, the Ofsted, assessment, exam boards, targets, all that stuff. I know where all this with all of that stuff. (Unpublished research notes/audio)

These embodied and material pedagogies are not just about developing one's own knowledge and practices. As Wenger (2005) asserts, knowing and learning these ways of knowing is not dependent on 'individual dispositions' (Bourdieu 1990, p. 64) but on connectedness, or using Whitehead (1926) concept of 'witness' with others in the embodied socio-material practices of a place/world, 'as happens with people when you live with them . . . resulting in more and more refined knowledge' (De Waal 2011, p. 1) practices and pedagogies. But not just of the local and immediate; as Wenger (2005) asserts, 'knowing in practice involves an interaction between the local and the global' (p. 141) or as I would contend, an intra-action of the local with the global that is pedagogic.

This can then result in pedagogy 'that becomes the practice of freedom, the means by which we, teachers with learners-learners with teachers deal critically and creatively with reality and discover how to participate in the transformation of our world' (Freire 1970, p. 16) and how we enable these practices not only to endure but also to grow and evolve so that all learning spaces can become transformative and emancipatory places that disrupt hegemonies of power.

4. Pedagogies for Transformation and Emancipation

As explained at the beginning of this paper, I draw on the theories of critical pedagogy (Giroux 2003) and the work of Freire (1970) and hooks (1994) to position a conception of pedagogy as learning how to be in the world—mind, body, spirit. But this conception of pedagogy can also enable the questioning and challenging of domination and the beliefs, knowledge and practices that dominate and can

become the practice of freedom, the means by which men and women deal critically and creatively with reality and discover how to participate in the transformation of their world. (Freire 1970, p. 16)

Therefore, this practice of freedom is 'about how we learn together and make changes together' (Page 2012, p. 73), where the practice and theories of learning and teaching are responsive to matter and to space-time-mattering. All this occurs within the contingencies, differences and diversity of life that concerns itself not only with relationalities of power, constituted and reproduced by bodies, but also with how bodies participate in/with these relationships. Coole and Frost (2010) assert that there is

increasing acknowledgment within theories of politics- and especially in theories of democracy and citizenship—of the role played by the body as a visceral protagonist within political encounters' . . . and 'thus reveals both the materiality of agency and agentic properties inherent in nature itself. (pp. 19–20)

Everyday embodied and material practices of democracy and citizenship, which initially may seem inconsequential, are exactly such sites of political reproduction and production. This is well illustrated in an issue of the Financial Times Weekend Magazine (May 24/25, 2014) that aimed to ‘give a sense of what today’s Europe feels and looks like—and how it is changing’ (Kuper 2014, p. 7). This commentary discusses ordinary everyday practices that I contend are political entanglements of bodies with matter that are pedagogic. It also draws attention to the intra-actions, the differences that make a difference, of the why and how Europe works (Kuper 2014, pp. 10–11) or, more recently, does not work.

Kuper (2014) asserts that Europe works because ‘little differences encourage cross-border learning . . . partly because European countries remain slightly different from each other’ (Kuper 2014, p. 10). The intra-actions of the transport networks, rail, commercial flight companies, climate and the proximal geography of Europe (higher ratio of coast to landmass than any other continent or subcontinent) has enabled mobile Europeans to share and exchange ideas and learn ‘with’ and from their socio-material place/world. This is because the space between these bodies with the socio-materiality of land—language, climate, etc.—is pedagogic. Pedagogy then emerges in the repetition but also the resistances of everyday practices through tables and chairs on pavements in London, gay marriage, hybrid accents and languages, but also in politics.

Through the founding of the European Union, European countries have enabled the teaching of democratic systems across their land borders and as a result ‘from 1995–2013 the world’s fastest growing middle-income economics were the Baltic states, Poland and Slovakia’ (Kuper 2014, p. 11). European trans-national debate has supported a sharing, a learning, of different ways of knowing and understanding employment, free markets and the environment. However, this sharing and learning from each other is not all rose-coloured because, in this time of Brexit and the increasing world retreat from democracy, we are learning to only look within and to protect what we think is ours.

These examples I have shared demonstrate that we may affect matter but that matter also affects us; the between of bodies with matter is pedagogic. These affects can be profound, although more often they are subtle and/or hidden. But they are inescapable and are a necessary entanglement that is altered with different intra-actions of socio-cultural makings of matter. But it is this continual making and remaking of matter that is part of our existence, the action between matters, and it is through this entanglement of all of our seemingly heterogeneous praxis that ‘the patterns of difference that make a difference’ (Dolphijn and Tuin 2012, p. 50). The very intra-actions of matter and meaning are made visible and therefore enable dissent and ruptures but also support resonances and are not only resistant to existing practices but are also pedagogic. They enable the continual questioning and challenging of domination and the beliefs and practices that dominate (Shor 1992). I am in no way advocating tips, a checklist or a model for higher education pedagogy but rather a very exciting, complex, dynamic, pedagogic and socio-material entanglement that can be transformative and emancipatory for teachers with learners and learners with teachers.

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