THE MATERIALITY OF THE PEDAGOGICAL ENCOUNTER: IMPLICATIONS OF AN ACTOR-NETWORK THEORY EDUCATIONAL ANALYSIS

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Abstract

Pedagogical analyses have traditionally centered on teachers and students. Some approaches, like Reggio Emilia have moved beyond the binary to include the environment as a third entity. While including the environment is, no doubt, important in recognizing the composition of pedagogical encounters, we propose to expand our understanding of pedagogical encounters further to include the actors whose agency might be playing a role in their conceptualization. Drawing on Bruno Latour's Actor-Network Theory and related educational scholarship, we examine the materiality of a pedagogical encounter and consider all those varied and diverse entities, their associations, and accorded agency, that bring them into being and have implications in the becoming of students. The point of understanding pedagogical encounters from an ANT perspective is that it allows us to challenge taken-for-granted notions about what pedagogical encounters entail and the becoming of students within them.

Keywords: actor-network theory, pedagogical encounters, sociomateriality

The Materiality of the Pedagogical Encounter: Implications of an Actor-Network Theory Educational Analysis

Analyses of pedagogical encounters often emphasize the exchange between the student and teacher but fail to consider materiality in the complex context of such encounters. As Fenwick and Edwards put it, "educational analyses rarely attend to the behaviour of things" (Fenwick, Edwards, & Sawchuk, 2011). However, in the last decades, it has been recognized that pedagogical encounters do not take place in a void but are embedded within a physical space. Consequently, besides the teacher and student in relationship in such an encounter, the environment or physical arrangement of space has also been acknowledged as relevant in facilitating or hindering learning experiences (Hall et.al, 2014). Nevertheless, this recognition has been somewhat questioned by Dianne Mulcahy, educational researcher at the University of Melbourne, and her colleagues. After carrying out a sociomaterial study of learning spaces and their relation to pedagogical change, they reported "no causal link between learning spaces and pedagogic change" (Mulcahy, Cleveland, & Aberton, 2015; OECD, 2013). Mulcahy et al. are not implying that learning spaces are not relevant or are not involved in effecting pedagogical change. What they are pointing to is a lack of linearity or direct link between one entity (space) and one outcome (pedagogic change). Mulcahy et al. state that pedagogic change hinges on "multiple relations and multiple forms of practices" and is not the result of one entity, i.e. spaces (p. 575). They see learning spaces, as well as pedagogic change, emerging or coming into existence in the encounter of all actors involved: designs and designers of spaces, teachers, students, furniture, didactic materials, ideas, policies, educational practices, and so on. For them, the physical space, the uses of the space, and the people are involved in a "*mutually constitutive* relationship" (p. 580).

Similarly, pedagogical encounters encompass the intersecting and interconnected entities of teachers' endeavours, spaces, and students; however, the complexities and relationality of pedagogical encounters cannot be limited to these three acting entities only, nor can the actors involved be determined in advance before a detailed examination of their intricacies. From a sociomaterial perspective where phenomena in the world are conceived as relational and performative, actors, including those mentioned above (i.e., teacher, students, and space) emerge into being as they relate to each other and to other entities present and active in any given state of affairs (Latour, 2007; Fenwick et al., 2011; Barad, 2003). In the analysis of a pedagogical encounter, this understanding of phenomena compels us to be open and perceive where action is taking place or coming from to guide us to the actors involved. It also allows us to recognize how the agency of those actors participates in creating the world we inhabit. And in the particular case presented in this paper, it helps us to understand the becoming of students.

In this paper we expand on the idea that elements in addition to the teacher and student and the environment could be part of the network 'pedagogical encounter' (Davies & Gannon, 2009) and that one should be open to perceiving agency wherever it may arise (Latour, 2007). We should be able to achieve these two moves, perceiving agency and recognizing the actors, without exerting any kind of censoring of actors or limiting agency to human intentionality.

This, of course, might mean letting some elements into the analysis for which traditional sociology does not account. Here we rely on Latour who reminds us that "we have to restudy what we are made of and extend the repertoire of ties and the number of associations way beyond the repertoire proposed by social explanations" (Latour, 2007, p. 281). In other words, traditional sociology determines the groups of actors within a state of affairs from the start of the analysis. Fenwick and Edwards point out that these actors are commonly limited to human subjects and their intentions (Fenwick & Edwards, 2010). Drawing on Actor-network theory (ANT) (Latour, 2007; Law, 2009) and other sociomaterial theories and scholarship in education, we highlight the relationality of diverse and different elements and emphasise materiality in the creation of the world we inhabit, consequently decentering the human subject as the sole source of agency.

The purpose of the paper, then, is twofold: first, it demonstrates the feasibility of analysing a social face-to-face interaction (that between a teacher and a student within a pedagogical encounter) in terms of materiality; and in so doing, highlighting the materiality in the composition and emergence of subjectivity (that of a student). The second aim of the paper is to stress on the need to shift our thinking paradigm from a Cartesian understanding of the world as divided and hierarchical to a material-relational and performative ontology. The importance of this shift has been put forward by several scholars (Latour, 2007; Coole and Frost, 2010; Barard, 2003; Bennet, 2010; Braidotti, 2013). Not taking this needed shift seriously means disregarding non-human actors and their agentic interventions within the social world. These actors' agency is real and is intra-acting (Barad, 2003) in the becoming of the world. We can either let them exist in anonymity, as most social analyses do, hiding some of the sources of evolving social phenomena or we can bring them to the fore and try to understand how they intervene in shaping reality. We have chosen to do the latter.

In what follows, we use the insights of sociomateriality, in particular of actor-network theory, to analyse a real-life pedagogical encounter experienced by the second author of the paper by presenting four of the fundamental notions of ANT: network, agency, actor, and translation. The network concept allows us to be sensitive to all entities participating in the pedagogical encounter and prevents us from excluding anything or anyone a priori. Considering agency from an ANT perspective facilitates the perception of action so we can recognize where it is coming from and thus reveal the actors involved in effecting Jeremy, the student. The concept of translation provides an understanding of how different actors participate in effecting the distinct students that Jeremy can be.

Using an ANT lens to highlight the relationality and performativity of a learning network, we discuss eight-year old Jeremy (a pseudonym), a real student in an urban school in British Columbia, as an effect of a pedagogical encounter. Using four fundamentals of ANT we explore the potential implications of the elements of the encounter and the ways in which their associations effect Jeremy as a student. It is important to note that in any account one can only start in the middle of things as the world is in constant flux. Consequently, the narratives and

their analyses will present a slice of life, if you will, one small moment in Jeremy's day, on a particular day.

What is a pedagogical encounter?

For the purposes of this paper, a pedagogical encounter is a relational event between a student, teacher and other, less visible actors, human and non, within and around them (Fenwick et al, 2011; Fenwick & Edwards, 2010, Davies & Gannon, 2009). Hundreds of these encounters occur in a school day, in a never-ending entanglement of effecting and becoming. To examine such an encounter, actors, human and non, must be considered in order to articulate what has happened in the encounter and how those happenings might inform educational processes.

Actor-network theory

In ANT the world is composed of entities, both human and non-human, that associate, relate, and modify each other in different ways (Latour, 2007). This relationality that creates the world we inhabit is expressed in the concept of a 'network'. For ANT the world is not just relational, but is also in constant flux due to the 'translation' (shaping and reshaping) that takes place between and among its diverse and varied elements. To capture the 'agency' involved in the fluidity of the relating entities, ANT has added the notion of an 'actor' to the concept of the network, hence the name: actor-network. Actor-networks encompass actors' relational agency; in this way they express the performative relational ontology of the world.   Putting it more explicitly, phenomena are performed into existence through translation as a result of the agency of the actor-network. It is from this performative relational perspective that the becoming of the world can be perceived.

Each of the above-mentioned fundamentals of ANT (network, agency, actor, translation) will be presented through the analysis of the pedagogical encounter we describe below. While these fundamental notions of ANT do not operate in isolation they will be discussed as separate entities for clarity.

The pedagogical encounter through four fundamental notions of Actor-network theory

The pedagogical encounter

> *Jeremy's teacher tells me that Jeremy has hit another student in frustration and "it's the second time in two days."*
> *Jeremy is slumped in an office chair; red cheeked, furrowed brow, boasting a menacing stare, challenging me with both defiance and supplication. We have met this way before. My "Hello Jeremy" bounces off walled silence as his arms fold over his chest and his breath forces a harrumph. "Let's walk," I say, doing my best to ooze "I am here for you. Everything is okay." I match his pace and after a few minutes of silent walking, Jeremy tells me about his new Lego project, asks questions about the surrounding plant life, and shares facts about the trees swaying beside us. Discussing the*

resident owl and hawk Jeremy considers the availability of mice now that the grass had been cut short. He comments, "they depend on that food, that's why we need to keep the grass longer." On our second lap around the school, I ask: how might you fix your mistake?

With insight and compassion, Jeremy articulates a caring plan to make amends with his teacher and his peer, without any prompting from me.

Networks

Theories that emphasize the 'material' use metaphors such as 'mangle' (Pickering, 1995) 'mesh' (Ingold, 2011) or 'rhizomes' (Deleuze and Guattari, 2014/1987) to bring to the fore the relationality of the associations of humans and materiality that depict social life. In ANT, this immanent relational characteristic of the world is expressed in the metaphor of the 'network'. Network is a concept used to deploy the relationality of elements that make up the world we inhabit. Following the traces left by the association of these elements as they exert their agency when translating (shaping and reshaping) each other creates a network-shape account, meaning that the points of connection of the elements get highlighted. According to Latour, the features of the network are (Latour, 2007, p. 132)

   a.   A point to point connection
   b.   Empty spaces between what is not connected
   c.   In every connection something happens

Latour makes clear that network is not "a thing out there" (p. 129), but the tracing of the associations of the different actors denoting the points where they relate to each other. Although actors relate to each other in myriad ways and forms, tracing only the connections of perceived agency leaves spaces that are not registered as part of the analysis or exploration of the phenomena. The idea behind this 'empty space' is that we do not know everything that takes place at a given moment. What is in between the connections is "not hidden, but simply unknown" (p. 244). Latour also remarks that the metaphor of the network should not evoke the representation of a thing that looks like a network, e.g. train tracks or telephone network (Latour, 1996). In fact, the tracing of associations that takes the shape of a network in an account, could be of something that does not have the shape of a network at all, such as a symphony, a piece of legislation, a rock from the moon (p. 134) or, we would add, a pedagogical encounter.

In Jeremy's story we can see the three features of ANT's network. First, there is a point-to-point connection between different elements. The path surrounded by plant life and trees makes available a walk outside, the silence of the principal offers breathing space and thinking time, and the missing grass inspires a conversation. Second, there are the empty spaces, available but unknown, between that which is not connected. We cannot account for everything that is acting upon Jeremy in this pedagogical encounter-network. Third, in every connection something happens. At the end of the walk, because of the many points of connection between Jeremy, the principal, and the materiality surrounding them, Jeremy could formulate a plan to repair his

relationship with his peer and his teacher. What allowed the plan for reparation to happen without the typical face-to-face interaction in the principal's office and associated punishment?

Thinking about the world as a relational network prevented us from defining a priori the elements in this given state of affairs. The tracing of elements that were shaped by other element(s) lead us to some actors exercising agency. Once we perceive this agency, we are able to identify the actors. The next section elaborates on this idea.

Agency

Agency is one of the most controversial concepts in the social sciences and in philosophy where the discourse fluctuates between agency as strictly related to human intentionality or relegated to external forces acting on the individual (Fenwick & Edwards, 2012; Heckman, 2010, Coole & Frost, 2010). In this section we do not wish to discuss such controversies but rather, as Latour says, bypass the dilemma of a free acting or externally determined individual (Latour, 2007, p. 76). What we wish to explore is the sociomaterial conception of agency where the human subject and its intentionality has been decentered. For Fenwick et al., "agency…is understood as *enacted* in the emergence and interactions…occurring in the smallest encounters" (Fenwick et al., 2011). Within a relational view of the world, where actors (human and non-human) are not defined a priori but performed into existence as they relate to each other, this novel conceptualization of agency allows us to identify those actors and account for their agency. ANT recognizes the agency of non-human entities as emerging among human and non-human actors participating in any account, these entities act upon one another or 'translate' one another, but as Latour (2007) remarks, it is not always clear or not always easy to identify "who [or] what is making us act" (p. 52). An example follows in the next paragraph.

If we trace the network carefully and follow the action wherever it is taking place, we will find the agent. Several events took place during the pedagogical encounter we narrated above. Let's consider one of them. Jeremy and the principal walked from the office to reach the outdoors. They walked in silence for a while and eventually Jeremy made a comment about the tall grass that had been cut and the lack of mice to feed the owls, *"they depend on that food, that's why we need to keep the grass longer."* Jeremy experienced a change, but what changed him? The grass, or more precisely, the missing grass. From all the varied and different elements present in this account, it is the missing grass that has triggered Jeremy's thinking and caused him to speak. In this example, we see how the missing grass engaged Jeremy and facilitated a conversation. The missing grass shaped Jeremy. Consequently, in our account, the missing grass, now identified as the source of the agency that moved Jeremy to speak, would be registered as an actor.

One might argue that Jeremy saw that the grass was missing and thought about the mice and the owl all on his own. To which we would reply: this conception of the world limits agency to human intentions only and ignores that the missing grass played a role in Jeremy's becoming in this particular encounter. Further, 'playing a role' implies participating or acting (as in doing something) and thus, being an actor. Moreover, one would commonly say that 'the missing grass

caught Jeremy's attention'. And in this statement as well, one is unwittingly acknowledging the agency of the grass.

In a similar way, there are many other actors whose agency has come together to create the pedagogical encounter that effected Jeremy. By suggesting that Jeremy the student is an effect or emerges as the result of the relational agency of the elements in the pedagogical encounter, we are not implying a deterministic view of agency, but a relational view. According to Fenwick and Edwards (2012), in educational encounters the teacher as an effect of the network, is "not determined by the network" but rather "emerges" through the many translations that take place between and among desires, thoughts, objects, places, discourses, and so on (p. xvi). In the same sense, in the example of the pedagogical encounter, the agency of the actors manifested through the translations that took place effected a specific student. Putting it differently, depending on the agency of the network at play in any particular instance, while Jeremy is still Jeremy, the student that emerges from the networks of the pedagogical encounters that took place in the classroom is different from the one that emerges from the network 'pedagogical encounter' after he meets the principal.

The importance of recognizing the agency of the actors in pedagogical encounter-networks is that *their agency is shaping all entities involved* whether we acknowledge it or not. Those actors are (re)shaping, allowing, influencing, and forming the becoming of students (and teachers and spaces), yet we are not always aware of who or what is doing what to what or whom. For any account of reality to be relevant it must include all actors whose agency is perceived, especially when trying to understand such delicate matters as the becoming of students.

Actors

In this section, we wish to present ANT's notions embedded in the word actor. To achieve this goal, we will look in more detail at the different claims made in the introduction to ANT when we said that 'to capture the *agency* involved in the fluidity of the relating of entities, ANT has added the notion of an *actor* to the concept of the network'.

First, let us focus on the statement: 'the agency involved in the fluidity of the relating of entities.' When speaking of agency, ANT does not differentiate between humans and non-humans. All of these elements are constantly doing something, relating in one way or another. The gathering of agency that allows for this fluid relating of entities is what is called an 'actor'. The word 'actor', as an actor in a play, means that there are many others coming together or assembling what that one actor will do. In one actor on stage, there are several elements: the persona of the actor (without forgetting the etymology of the word persona: mask or played by an actor), the playwright, the editors, the stage, the details of the physical space, the audience's interpretation of the moment, the lighting, the backstage crew, and so on. In this sense, the word 'actor' according to Latour (2007), means "it is never clear who and what is acting when we act, since an actor on stage is never alone in acting" (p. 46).

When Latour talks about human and non-humans acting, he does not mean that it is an "empty claim that objects do things 'instead' of human actors" (p. 72). It simply means that it is necessary to acknowledge that there are many more entities acting than what can be seen with the naked eye, and that these entities are constantly pushing, shaping and reshaping each other as they associate. By adding the notion of an actor as a conglomerate of agency in flux, to that of a network, ANT wishes to capture the relational ontology of the world in continuous (trans)formation.

Understanding actors' endeavours as not fixed but in a state of constant becoming enables us to comprehend that Jeremy the student is an effect of the network pedagogical encounter. Here, not just the principal of the school shapes his becoming 'this student' (the one concerned about the availability of mice as a food source for owls) as different from the first student (who hit other students 'twice this week' and who was sent to the principal's office), but many other actors were also involved in the (trans)formation of the pedagogical encounter that took place after he was sent out of the classroom. Elements such as the pace of the walk, the silence, or the missing grass were actors which translated Jeremy in such a way that he emerged as a different student than the one he had been just moments before.

Translation

The way entities relate to each other has been described by ANT with the term 'translation'. As stated by Fenwick et al. (2011), translation takes place when different elements come in contact with each other forming a link. Entities experience change when they come in contact, but they are also changing other entities. They are constantly acting on one another. What is important here to highlight is that translation is not deterministic; which entities come in contact and how they do so is unpredictable.

John Law (2009) explains that the metaphor of translation comes from the notion that to translate is to "make two words equivalent", but since two words are not exactly the same, to translate always implies a betrayal (p. 144). Thus, every time translation takes place, a change takes place as well. Furthermore, for Latour (2007), translation implies transformation. The entities transform each other as they relate, allowing them to emerge into existence as something new or different. It is these translations between entities that produce the associations that can later on be traced (p. 108).

In the pedagogical encounter we presented, we can see different actors (inter)acting with Jeremy as he walks with the principal. The silence *allows* him time to cool off, the missing grass *engages* him and *opens* him to share his ideas, the path *provides* for an alternate setting, the Lego project *reminds* him of something he cares about, the principal walking next to him at his own pace *reassures* him, and so on. The different ways in which each actor engages with Jeremy is called translation. Within this pedagogical encounter, the translations that took place effected a student who was able to move beyond his mistake to making a plan to correct it.

Discussion

Fenwick et al. (2011) state that Actor-Network Theory understands "objects, as well as all persons, knowledge and locations" as relational effects (p. 103). Under this insight we recognise the equal and distributed agency of all human and non-human elements within a pedagogical encounter and acknowledge "how education is assembled as a network of practices" (p. 95). By analyzing the pedagogical encounter through the different ANT components, we have kept the challenge imposed at the beginning of the paper of 1) remaining faithful to a symmetric analysis between all entities and 2) not limiting actors a priori. We have thus described how a social phenomenon usually perceived as taking place between two human subjects (i.e. a pedagogical encounter between teacher and student) actually emerges in the intra-actions with the non-humans.

In so doing, we have also brought to light how the subjectivity of Jeremy emerged in the in-betweenness of human and non-human agency. ANT enables us to highlight the becoming of the student as emerging with the pedagogical encounter now understood as a network. Understanding pedagogical encounters from an ANT perspective allows us to question taken-for-granted notions about what these encounters entail and consequently how we conceptualize the becoming of students. Re-orienting our gaze towards the countless ways students' subjectivities are performed could have positive implications for who they become.

An Actor-Network Theory analysis disclosing a material-relational performative ontology of the world where humans and non-humans intermingle in myriad ways challenges and disrupts mainstream thinking about the world. It shifts our thinking from a view of the world that stresses division between humans and everything else to one that acknowledges the relationality and performativity of its varied and different elements where the agency of the human and the nonhuman associates to bring about the world we inhabit. Such a shift expands our awareness, opens the space for new ways of praxis and enhances the possibilities of effecting different results and realities by considering and attending to as many elements as possible in the performativity of any given social phenomenon.

The analysis presented turned our gaze toward the pedagogical encounter and Jeremy's subjectivity as emerging from the networks that performed them, where unexpected material actors' agencies and translations participated. This shift in understanding the world invites us to ask: what would education look like if we understood the world as performative and relational? How might we practice education if we could account for diverse and different material agencies acting in the process?

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