Contagious Education

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Abstract

The use of data to govern education is increasingly supported by the use of knowledge-based technologies, including algorithms, artificial intelligence (AI), and tracking technologies. Rather than accepting these technologies as possibilities to improve, reform, or more efficiently practice education, this intra-view discusses how these technologies portend possibilities to escape education. The intra-view revolves around Luciana Parisi's idea of "digital contagions" and participants muse about the contagious opportunities to escape the biopolitical, colonial, and historical rationalities that contemporary education now uses to govern populations in ways that are automated, modulated, and wearable.

Keywords

Data; Governance; Sensors; Biopolitics; Decolonization.

Introduction

The following intra-view was developed in the Fall of 2021. The intra-view brings together Drs. P. Taylor Webb (TW), Marcelina Piotrowski (MP), and Petra Mikulan (PM) to reflect upon their symposium entitled *Contagious Life and Education's Erratic Encounters with Informatics*, presented during the New Materialist Informatics conference, 24 March 2021. The symposium used Luciana Parisi's (2007, 2013) idea of "contagion" to examine the transmogrifying aspects of informatics and data in education. The conversation is guided by three questions designed to provide participants ways to reflect upon their symposium, their respective research programmes, and additional insights into their innovative and exciting work.

During the symposium on 24 March 2021, Drs. Webb, Piotrowski, and Mikulan discussed how digital data resist representations, and instead, assume "a life of their own." The symposium examined the contagions of data in relation to the ways education is governed – and in relation to the ways that education governs subjects – through biopolitics, ecology and wearable sensors, and as a speculative site of decolonization concerned with datafications of race and ethnicity.

The symposium discussed education governance as accelerating processes that increase forms of control through the contingent practices of decidedly non-human and contagious silicon-based objects. The symposium illustrated these ideas by discussing the ways planetary life is increasingly sensed through wearable informatics at the level of the biological (e.g., wearable sensors). The symposium concluded with a speculative reading of life as excess contagion, which provides intensifying forms of biopolitical control and corresponding modes of becoming between human and inhuman networks.

Intraview

MP: How are you currently thinking with/about informatics and new materialism in education?

TW: My research examines forms of educational governance and is designed to better understand how education is constituted through expressions of power, force, and politics. In this sense, my research examines the practices and conceptions of educational politics and policy. I am also interested in the converse of this arrangement. That is, my research also examines how the practices and policies of education govern, rationalize, and produce particular subjects within liberal, neoliberal, and advanced liberal (authoritarian populist) architectures. As a result, my research is designed to be both empirical and speculative, and designed to examine relationships between competing subjectivities, political economies / control societies, and biopolitics. Currently, I am examining how Artificial Intelligence (AI) influences educational governance, particularly in relation to the global practices of what Nicolas Rose (1991) discussed as "governing by numbers." I link these non-human forms of governance to ideas of "new materialism" through Coole and Frost (2010), particularly their discussion of the "bios": bioethics and biopolitics. My work has always emphasized ontology, and I appreciated that Coole and Frost (2010) also emphasized ontological concerns in their conception of new materialism and biopolitics. In terms of informatics, Petra and I were fortunate to spend a year learning about neuroscience at the University of British Columbia as part of her postdoctoral research. As a result, we began thinking about bioinformatics, AI, governance, and biopolitics. We have a chapter coming out shortly that examines the potential for bioinformatics to escape and decolonize forms of biopolitical control produced through education (Webb & Mikulan, 2022).

MP: My research focuses on environmental media, digital culture, and posthumanism, and their relation to epistemology and ontology, particularly in the contexts of projects aiming to facilitate public environmental education. I have been focusing on the implications of non-human sentience on speculative planetary futures facilitated through uses of sensor-produced data in public knowledge projects. For me, public knowledge projects and adult education aimed at ecological change will increasingly need to contend with the concurrent cybernetization of Earth and of bodies and this is where informatics and matter intersect in my own work. The story of how planetary informatics are producing knowledge about life at the level of the biological (e.g., personalized smog sensors) is a key part of my current research. The horizon of

environmental education is becoming detached from the idea of human symbolism, interpretation, and transformative approaches through wearable sensor technologies. I agree with Taylor that "governing by numbers" is central for understanding contemporary intersections of informatics and biopolitics. For example, while the quest to represent environmental crisis to affect education and action has been a central way to think about and between matter, climate change, and education, the shift to planetary informatics that autonomously alter conditions of life are significant ruptures in ecological thought. I am examining public knowledge projects from innovation design and sensor technology companies that are challenging the idea that ecological thought can incessantly be human.

PM: As Taylor mentioned, we are working on a speculative approach to the not yet imagined possibles afforded by the potential that bioinformatics portends for escaping and decolonizing forms of educational and bioethical control. I am drawn to both Claire Colebrook (2019) and Denise Ferreira da Silva (2014) in terms of decolonial thinking of informatics, matter, and materiality. Their feminist poethics helped us think about different scales of extension and intensity simultaneously (desiring, cosmic, organic, historic, quantic, informatic). My research with Nathalie Sinclair has understood simultaneous extensions and intensities of informatics, matter, and materiality through what we call a stratigraphic "method." My work with Nathalie has morphed into a study of time and temporalities as governing expressions and governing practices of colonial atavistic-juridico-economic power that suspend all thought of "educational revolution," rupture, and refusal in the field of education. As such, my research examines personal and impersonal questions of what it is or is not to be human presently, and in relation to the many people that have been living dystopic futures for too long now. My research examines the roles of education to anticipate and address our increasingly artificial and non-human modes of existence. My own sense is that humans have always been artificial despite the loud clamour about humanism, and, for me, our particular moment of informatics and materiality only illustrates, reaffirms, and extends our artificiality, and in particular ways. As result, my research examines possible futures involved with either sustaining formalized education, like schools and universities, and their modes of colonial, organic, and biopolitical operation and extraction at all cost, or to escape and terminate education

as we know it. Taylor and I just published a short editorial about this very wager, and several students have told us that the idea of "escaping education" is very important to them (Webb & Mikulan, 2021). In this sense, my work is motivated by Whitehead and his terrific idea that, "[a]ny serious fundamental change in the intellectual outlook of human society must necessarily be followed by an educational revolution" (1929, p. 116). I definitely feel that this quote captures our moment perfectly.

TW: That is a fantastic quote. Whitehead's *The Aims of Education* is one of my favourite books! I think your and Nathalie's idea about stratigraphic method is a potent way to understand simultaneity. I would be remiss if I didn't mention Dr. Liz de Freitas. Liz is someone I really enjoy, and her work has been super helpful to how I conceive some of the relationships of informatics, new materialism, and education.

MP: Why is Luciana Parisi's (2013) idea of "contagion" an important/timely topic or approach when it comes to looking at materiality of informatics in education?

TW: For me, Parisi's discussion of contagion portends a "dangerous politics" that I believe might provide opportunities to escape neoliberal educational governance. Parisi locates contagion as the ways algorithms prehend or sense the very architectures that they have been scripted into. As such, contagion signifies how an algorithm's "own" sense of data ultimately transforms both the data itself and the architectures (i.e., hardware and software) that provide the meaning of those data. Contagion, then, signifies thresholds of control between humans and the non-human machines, but also signifies a densification, "gridification," or, to borrow from Deleuze and Guattari, a striation of control as we devise more and more ways to govern and control populations through sophisticated technologies. Facial recognition technologies and software would be an example in education. Deleuze (1992) presciently discussed control and technology in his essay "Postscript on the Societies of Control." In that essay, Deleuze argued that one way to escape technological control is to actively "jam" infrastructure systems. He gives the example of distributing computer viruses through various electronic networks. Parisi's idea of contagion, I believe, provides a similar idea but one that is resolutely non-human. In other words, contagion articulates a decidedly non-human approach to jamming technological systems, which, albeit a speculative approach, provides opportunities for political

action within technology's own fallibilities, leakages, and contagions. As education control becomes increasingly dependent on practices of numerical governance and automation, I am looking for ways to help people elude, flee, and decolonize education through the cracks and crevices produced in technological governance. Contagion is an idea that I like quite a bit for these purposes.

PM: Taylor gives an excellent interpretation of contagion when he speaks to algorithm's potentiality, or the non-reducibility to either data or its architectures. Contagion in this precise sense implies new standards for what counts as authentic knowledge about life, thought, and technological control. For my research purposes, I extend Parisi's idea of contagion with Colebrook's (2019) idea that "all life is artificial life." For Colebrook, if we do not focus on logics that sustain ourselves as organisms conditioned on, and directed towards, autopoiesis, "we" might begin framing different questions regarding what life and living are, and what it might portend and do outside organic self-enclosures. Like Parisi's idea of contagion, Colebrook's provocation helps me to think life in terms not reducible to processes of self-maintenance, production and reproduction.

MP: I agree. Parisi's (2007, 2013) contagion is an important concept that functions methodologically to investigate the virality of irreversible ruptures caused by autonomous technology. In Parisi's case, this refers to mutations and excesses produced through artificial intelligence. For me, it is about the possibility of producing space apart from the totalizing ideas that haunt public knowledge projects under the guise of education and democratization at a time of planetary catastrophe, and this is where my work intersects with Taylor's. This is pertinent in terms of ideas about how "knowledge" is perceived to be central to ontology. It is not clear "who" "knows" and whether anything can be known at all when we talk about the data produced through sensor technologies that have their own non-human experiences of things like climate change, smog, radio frequencies, and pesticides. Sensor technology has its own bionic tendencies, which Parisi (2009) also discusses.

PM: I completely agree as well. Working with both ideas of contagion and artificiality helps me think about non-human modes and expressions of relating and non-relating and the repercussions these ideas have for education. As such, I locate a certain

romantic anxiety in the field of education where these "contagious" principles and standards of automation, algorithms and AI that now govern life, information, knowledge, education, and humanity might diminish the human experience as "we" know it. Like Marcelina, I am very interested in the crises produced for education concerning questions about "who knows" and "knowledge." These kinds of questions radically reorient and undermine how formalized education understands individual, classed and social comportments to life, living, and wellbeing. Accounting for the contagious architecture of (artificial) life in pedagogical terms, wherein local loss and perishing are the necessary events for any potentiality or "new" mode of possibles to take place, might provide us with a new ethos and pathos in approaching the wager that education might need, to use Taylor's words, "jam" the already known and presupposed scales of technological control and educational architectures. In other words, contagion provokes a profoundly pedagogical idea of refusing educationally established and colonial provisions (Bignall and Patton, 2010). Contagion bifurcates logics about organisms and organismic life into either living and dying, but perhaps more interestingly, zombie or artificial modes and expressions determined in advance, and usually only in terms of organic and already actualized (distributed to/for some and not others) enclosures.

TW: It is so fun to work with both of you. The crises of epistemology – that is the "who" or "what" of knowing – including the very crises of "knowing" and "knowledge" – is something that really threatens, as Petra noted, education and many of its romantic tropes. Most epistemologies privilege ideas of discursive "knowledge," which is not a good metaphor for understanding our embodied, contagious, artificial, and sensored-thought. Embodied, contagious, and artificial sensibilities are, instead, ways to displace knowing and knowledge for ideas of thought, thinking, prehension and so on.

MP: Such a neat conversation. The question, for me, then focuses on what this does to educational theory when the very idea of thought is opened up to its outside allowing itself to become infected with machines that have sensations? We can see this in others' work recently as well. Beier and Wallin (2020) have recently called this the "heretical elaboration of an outside thought" (p. 54). Contagion is a timely methodology to not only think about stagnation in humanist theories about human relationships to the material world, but also describes some of the mutations that have

already been imbedded in the sensation of being produced as a being by smart Earth technology. It is very much about deterritorialization at every turn.

TW: This is an excellent point, Marcelina. Deterritorialization is great way to focus on thought and thinking rather than "knowing" and "knowledge." Deterritorialization reminds me to follow the territorializing forces that produce knowledge, which, in turn, territorialize or enact "knowing" subjects.

PM: All your work touches on matter, informatics, and education in different ways and yet has the common theme of excess. How do excess and matter work in your own research on education/informatics?

TW: Excess is, again, another way for me to think about the politics involved with escaping control. I'm influenced by John Law (2004) and his ideas of excess. He discusses excess in ontological terms, and in ways that work with the overwhelming flux of the real. He locates excess within a politics of alterity, and in ways that are designed to intervene in representational epistemologies that reduce political action (for example, many research methodologies). As such, I find several similarities between ideas of excess and Parisi's idea of contagion. In my current research, algorithms and AI become the non-human "other" that are used to develop intensifying forms of control. Nevertheless, they contain within their own design and architectures non-representational forms of contagion, artificiality, and excess. As a result, the global-financial rush to develop AI will inevitably and simultaneously proliferate forms of algorithmic excess and contagion, providing possibilities for increased political action for more and more people. Excess, then, is a kind of methodological axiom I use to identify flux, leakages, and contagions, and in ways that "jam" systems and / or provide viral flows for escape (e.g., computer virus). For Law, excess is intimately connected to method, which I appreciate as someone employed as a researcher, but also as something to think with and through, e.g., excess as tactical, strategic, and fluid.

MP: My approach to inquiry has been by way of "more-than-"…, and here I am referring to concepts like more-than-representational (e.g., Thrift, 2008), more-than-rational (Anderson, 2006), and more-than-human (e.g., Manning, 2010). This approach has

emerged from a concern about reductivist methodologies that do not register ambiguity and excess. Thrift (2008) for instance focused on the excesses that are produced in new arrangements between bodies, power, technology practices. Data production, which is central to informatics, is excessive because it produces rather than represents, and the notion of data excess as that which sentient machines produce to keep human bodies alive complicates the porosity of data/bodies' insides/outsides.

PM: I understand excess in its ironic force. When thinking about the politics and ethics involved in escaping different forms of control and governance in education, expressions and styles of relating deemed artificial, parasitic, contagious and necrotic are relegated, governed and surveyed as negative modes of existence. At the same time, as Jason Wallin and I try to show (forthcoming), these very negative modes of existence function as support and signifier of that which is simultaneously enacted and rejected by the real. The negative operates ironically within the field of education as an excess (or in Jason's words, "the horror of the noumenal Real").

MP: Interestingly, data excess about Earth, produced by non-human sentience, will produce contagions that have unintended effects. My research examines some of the ways contagions of sensor data will manifest. For instance, for some it may result in AI enabled datafication of what Joanna Zylinska (2021) has called ruin porn, or alternatively in beliefs in data democratization (Hong, 2020). Both signal ideas of technological exit (e.g., Sharma, 2020) caused by affective excesses in their own ways. My interest is in how such exit fantasies are produced through informatic/matter contagions, and contagions are also always prompting me to ask new questions about ontology.

PM: Algorithmic contagions provoke, in my mind, new possibles and these will continue to infect and abduct the existing material fabulations and virtual potentialities in education. Taylor and I have been working on this idea that if bioinformatics can simultaneously equalize and aggravate unequal forms of life, accelerating this bioinformatic moment might, ironically, instantiate a "decoloniality of informatics" precisely through the proliferation of the negative, i.e., contagious, uncertain, errant, necrotic, and mutant life modes, expressions, and styles. We suggest

elsewhere (2022) that rather than reform education's anti / racist declarations of vitalist life, we suggest an accelerated use of "contagious bioinformatics" as a way to proliferate unknown possibles.

TW: Thanks you two. Always fun to work with both of you.

Acknowledgments

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