# From the Knowable and Transparent Individual to the Secret Thought of Individuation: An Anti-Capitalist Postdigital Ecopedagogy

**Derek R. Ford, Katie Swenson, and Megan Fosher**

## Introduction

The political and pedagogical landscape today is dominated by what Alexander Means (2018: 1–2) calls solutionism: the idea of 'the future as a computational project whereby seemingly intractable problems such as resource depletion and global poverty are rendered as technical issues to be "disrupted" through Silicon Valley business ingenuity and data platforms'. One of the main functions such an ideology serves is to present what are in reality structural problems of capitalism as mere technological problems that only capitalism can solve. One of the educational problems inherent to solutionism is that its 'ambitions have extended into K-12 schooling, where data processing and adaptive analytics are being promoted as a means of "customizing" and "personalizing" learning in the name of "reinventing" education for the twenty-first century' (Means 2018: 97).

In this chapter, we follow Means and shift the epistemological and political terrain to postdigital ecopedagogy, demonstrating how contemporary postdigital educational processes limit subjective and political potentials by dictating and naturalizing individuality as a finished product and starting point of sociality and demanding transparent knowledge. In response, we propose alternative anti-capitalist pedagogical modes that, consistent with the postdigital era, don't choose between the individual and the collective or between knowledge and non-knowledge but rather open other registers through presenting the unfinished *process* of individuation and asserting *thought* over calculation.

D. R. Ford (✉) · K. Swenson · M. Fosher
Education Studies, DePauw University, Greencastle, IN, USA
e-mail: derekford@depauw.edu; kswenson_2022@depauw.edu;
meganfosher_2022@depauw.edu

## The Postdigital Landscape of Contemporary Ecopedagogy

It is increasingly clear to many that it is no longer feasible to distinguish between the digital and analog, the virtual and material. In response to the ongoing digitization of the world and the blurring of the borders between the digital and non-digital, the critical sociopolitical approach of the 'postdigital' emerged. This concept that the postdigital champions is a 'holding-to-account of the digital that seeks to look beyond the promises of instrumental efficiencies, not to call for their end, but rather to establish a critical understanding of the very real influence of these technologies as they increasingly pervade social life' (Jandrić et al. 2018: 895). Defining the postdigital and what it designates among education studies, social science, art, music, biology, and others has been difficult and such work is still in the early stages. These designations feel messy and blurred, which is perhaps a condition of the postdigital ecosystem in which we live. The prefix 'post' allows for a critical view of both the subject and the philosophy it is intertwined with—similar to post-humanism (Sinclair and Hayes 2019)—yet also allows the postdigital to dismantle binaries so often surrounding understandings of the digital (Fawns 2019).

The digital is not located in a space separate from the analog. For example, the label of 'traditional' or 'face-to-face' classrooms are irrelevant and too simplistic in nature. Digital education is not independent of the analog world. While the physical and virtual spaces of education are not homogenous, neither are they totally heterogeneous. It is no longer useful to distinguish between digital and nondigital frameworks of learning because technology is now a driving force behind the engagement of materials in and out of, before and after, the class. As such, the complex nature of the terminology of postdigital allows for 'both a rupture in our existing theories and their continuation' (Jandrić et al. 2018: 895). 'The essence of postdigital culture', writes Angela Butler (2021: 63), 'stands not for a time after the digital but as an acknowledgement that the materiality of the digital is not reducible to the screen … It is a massively distributed reality that in turn conditions our perceptual realities.'

One way to approach our postdigital reconfiguration and to link it with ecopedagogy is to revisit Marx and Engels' (1970) efforts to break from Hegel in *The German Ideology*. Written in 1845–1846, in these notebooks they acknowledge that nature and humans are abstractions. 'Nature, the nature that preceded human history', they write, 'is nature which today no longer exists anywhere' (63). We could think of this as the post-natural move, in which it was no longer possible to demarcate any lines between the two categories.

Although Marx's use of nature throughout his works isn't totally consistent, one continuity is that there is no distinct nature separate from the human. Nature is produced and forms of humanity are produced, and the communist project, as Neil Smith (1984/2008) puts it, 'is not somehow the completion of mastery over it' (88) but a struggle over '*how* we produce nature and *who* controls this production of nature' (89). Such production is simultaneously the production of subjectivity, and the political, economic, and social order is the determining factor of the struggle. While the movement hasn't always admitted it, ecopedagogy has always been postdigital (Jandrić and Ford 2020)!

Similarly, the digital technologies surveyed below are not new, at least in U.S. education and, in many ways, continue capitalist pedagogies in the 'pre-digital' era. Insofar as the very word digital comes from the digits on the hand, the digital is essentially the division of the world into categories, units, numbers, etc. (Jandrić 2019). The U.S. educational system has always operated digitally insofar is its entailed assigning grades and categorizing students as groups and individuals. The nature of such digitalization, however, changes significantly as the capitalist mode of production has moved from large-scale industry to Taylorism and, finally, to post-Fordism.

## Capitalist Postdigital Ecopedagogy

In 2017, a group show, Blinding Pleasures, displayed at the arebyte Gallery in London, reoriented spectators, probing how humans might recognize how digital media might shape our own social relations and senses of self through 'Go Rando', created by Ben Grosser.[1] 'Go Rando' is a browser extension download that will randomly choose one of the six reactions on Facebook to respond to posts, explicitly making ourselves and contacts subjects of algorithms. 'Every "like," every sad or laughing icon is seen by your friends', Grosser says, 'but also processed by algorithms used for surveillance, government profiling, targeted advertising and content suggestion. By obfuscating the limited number of emotions offered to you by Facebook, the plug-in allows you to … perturb its data collection practices.' (Regine 2017) This software-based political art is an act of defiance that disrupts the data collection efforts of Facebook that 'enhance' its algorithms and their efforts to predict or modify behavior and provide data for capture and sale.

Shoshana Zuboff (2019) discusses 'Go Rando' in *The Age of Surveillance Capitalism*, an age she describes as the newest frontier of capitalism that intersects and permeates all aspects of human experience but, of course, doesn't have to determine our collective futures. For Zuboff, surveillance capitalism is based on the omnipresent capture of 'human experience as free raw material for translation into behavioral data' (8). This data, in turn, represents a 'behavioral surplus' that is not only a form of surplus value but one that shapes or 'herds' (8) our behaviors in an effort to generate additional surpluses. Corporations like Google, for example, profit from this behavioral surplus by targeting advertising to specific users, which demonstrates a shift from 'serving users to surveilling them' (84) and at the same time blurs the distinction between consumption and production and ultimately commodifies the entirety of our existence.

The capture, modification, 'herding', and surveillance of our behavior occurs through economies of scope and action. Economies of scope refers to the extension from the 'virtual' to the 'real' world as well as the depth of the intimate patterns of

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[1] See https://www.arebyte.com/. Accessed 1 November 2021.

oneself. Surveillance capitalism aims to profit from this through ubiquitous economies of action, designed to provide certainty of user behavior by nudging, poking, herding, manipulating, and modifying behavior in specific directions (Zuboff 2019: 202). This optimizes user behavior to the profitable benefit of information and communication technology corporations.

Surveillance capitalism is thus an implicit theory of postdigital ecopedagogy in which humans are almost completely subjected to the dictates of capitalism—but capitalism not as a mode of production but, rather, as 'a specific group of human beings in a specific time and place' (85). Capitalism isn't the problem, then, but only *surveillance* capitalism, and we should respond by reuniting 'markets and democracy' in a way that 'has served humanity well' in the past (517). The problem of this capitalist postdigital ecopedagogy is that it's predicated on an 'opposition between a benign capitalism and a distorted capitalism' (Kivotidis 2021: 105). In order to pursue the inaccuracies of the articulated problematic here and the proposed political response, and to propose elements of alternative postdigital ecopedagogies, we now turn to recent developments in and critical research on postdigital educational systems and forms.

Algorithmic educational technologies exacerbate existing and create new inequalities within schooling. Kathy O'Neil (2016), for example, details these effects in *Weapons of Math Destruction* and their solutionist presentation as neutral codes and operations. While it's obvious that 'our own values and desires influence our choices, from the data we choose to collect to the questions we ask' (21), the results amassed by their computations increasingly depict themselves as incontestably objective and, more importantly, accurate. This widely maintained presumption of technological impartiality further facilitates a false framework of understanding subjectivity as the summation of scores, an understanding that in turn structures our values and social relations.

ClassDojo is one such technology that pervades many elementary and middle school classrooms across the West. The central function of ClassDojo is behavior modification through the addition or subtraction of 'Dojopoints' from students' digital avatars (fun, colorful monsters).

> The behavior component of ClassDojo operates by way of teachers issuing feedback to individual students, groups of students or the entire class for particular behaviors or skills performed. The behaviors and skills to be targeted are customizable, with default options such as working hard, on task, displaying grit, off task and unprepared. The datafication of this feedback is integral to Class-Dojo's discipline approach. Two feedback categories are available: 'positive' and 'needs work'. Despite the obvious intention to apply a positive vocabulary, the visual and auditory cues accompanying each category expose a more traditional separation between 'positive' and 'negative' feedback. 'Positive' feedback is colored green and arrives with a pleasant ding sounding auditory cue, while 'needs work' feedback is colored red and arrives with an auditory cue to match, a harsh buzz sound. (Manolev, Sullivan, and Slee 2019: 40)

ClassDojo establishes a classroom environment in which students exist as individuals within a Dojopoint limbo of unique value. Any moment or action could incite a change in class ranking.

Even the bodies of students are transformed into metrics to produce data. Biometric measurement is the latest iteration of such commodification. Kenneth Saltman (2017) writes about a few of these projects. In one funded by the Bill and Melinda Gates Foundation, 'students wear biometric bracelets (Q Sensors) that run an electric current across the skin to measure changes in electrical charges'. Another project uses 'facial recognition algorithms [to] measure the students' facial expressions with webcams, analyze facial movement, and generate feedback reports to teachers' (Saltman 2017: 55–56). This is backed by research and confirmed in the projects underway. An analysis of policy documents for technologies of personalized learning found that they emphasize skills and human capital capacities, not social justice or knowledge for the public good.

Such data collected now measure 'noncognitive factors and student dispositions' through, for example, the online tutoring system Wayang Outpost, 'where researchers use *four biometric sensor systems* on students to measure and collect data on dispositions and engagement such as levels of frustration, motivation, confidence, boredom, and fatigue' (Roberts-Mahoney, Means, and Garrison 2016: 412). The gathering of this information promises elevated individuality for its users at the same time that it creates standards and distributions around the norm. The uniqueness of the individual can only be *known* relative to another individual.

These postdigital pedagogies produce subjectivity as a quantified and atomized individual and are not limited to education. This is evident in Moore and Robinson's (2016) study of Wearable and other Self-Tracking Devices, which can 'are worn around wrists, set within fabrics or sewed under the skin' or can 'take the form of wearable cameras taking location-specific pictures' (2776). 'A central aspect of such technologies', they write, 'is the quantification of what were formerly treated as immeasurable, qualitative aspects of the labour process or the self—such as mood, fatigue, psychological well-being, the desirability of cultural products and the worker's breaks and time-off' (2779).

Moore and Robinson (2016) locate the quantification process with Taylorist production, which worked to transfer 'the tacit, qualitative knowledge that empowers workers' to 'knowledge work within the planning division' (2781). This is a tendency within capitalism, which could only emerge on the productive forces of machinery. Handicraft and manufacture are insufficient for capitalism because they relied on the knowledge and skills of workers. Capitalism required machinery because, as Marx (1867/1967) wrote, it 'performs with its tools the same operations that were formerly done by the worker with similar tools' (353), and thereby replaces living labor as the driving force of production with objectified, dead labor. Taylorism extended this by increasing the detailed division of labor within production and across spheres of industry.

Moore and Robinson (2016) locate two differences with today's quantification technologies. One is that workers' knowledges (including non-cognitive forms) are still located in the workers but are expressed *through* the devises. Another is that Taylorism was confined to factories but today's quantification processes permeate life itself because the knowledge captured 'cannot, by definition, be measured by traditional Taylorist devices' (2781). This second difference may be more of a

continuity. Melissa Gregg (2018) writes about the Hawthorne experiments at Western Electric in the 1920s–30s, which weren't confined to the workplace: 'Observations covered the content of workers' lunches, dental health, footwear choices, and number of hours slept at night.' (44). They even sent (women) workers to medical clinics for examinations to produce more data.

Nonetheless, Moore and Robinson (2016) hit on a few elements of contemporary postdigital ecopedagogy. First, they make 'workers permanently visible to management' (2779). Second, they not only make the qualitative into quantitative, but they also make it so that 'anything that cannot be quantified and profiled is rendered *incommunicable*—meaning that it is marked and marginalised, disqualified as human capital and denied privilege' (2775) (emphasis in original). In the same manner as ClassDojo, they present subjectivity as individualized and quantifiable by devaluing that which can't be attributed to the individual subject-form or quantifiable data. They therefore show us not what social relations are but rather the 'determinate social formation which they co-constitute' (2785). This social formation isn't a radical break with capitalism—a new *surveillance* capitalism—but a continuation of capital's demand for ever-greater transparency, a demand that structures postdigital pedagogy.

## The Terror of Transparency

Postdigital ecopedagogy seems to be open and customizable and flexible through the technological opportunities of exposing oneself to others. As Fiber Calder and Kathrin Otrel-Cass demonstrate—and even celebrate—these technologies can 'enable perceived and actual open-mindedness and discovery', by, for example, offering 'students opportunities to reveal their concerns and delights' (2021: 456). 'Inhabiting' digital spaces', they claim, coincides with 'the user's perceived control, having choices and individualizing the space' (454). Although they recognize such visibility is limited by 'the conditions under which it occurs' and 'that the technology has a materiality that permits certain actions while making others impossible' (463), they nonetheless endorse such student expression.

Yet the expression under capitalism is a demand that defines contemporary pedagogy and politics. Thus, Byung-Chul Han labels this contemporary moment the 'society of transparency'. 'Everything,' he says, 'has been turned outward, stripped, exposed, undressed, and put on show. The excess of display turns everything into a commodity; possessing "no secret," it stands "doomed" … to immediate devouring' (2015: 11). This includes devouring the necessary *distance* of difference and the other, as well as the necessary distance within each subject.

Distance is an inherent obstacle to capital, both spatial and temporal distance. As Marx wrote in the *Grundrisse*, 'economy of time, to this all economy ultimately reduces itself' (1939/1973: 174). Within production, society, and the school, the trend is towards intensification and increasing productivity, both of which—*under capitalism*—entail speeding up work and our sense of time itself. The law of value

compels individual capitalists to decrease the labor time within their own factories. That same law compels capital to decrease circulation time. 'Thus the creation of the physical conditions of exchange—of the means of communication and transport—the annihilation of space by time—becomes an extraordinary necessity for it' (525).

There's a contradiction between the production and realization of capital, in that the production of surplus value necessitates driving down the value and price of labor power and displacing workers via technology, while realization necessitates enough 'effective demand' to realize the value produced. As Marx wrote in the manuscript for volume 2 of *Capital*: 'Contradiction in the capitalist mode of production: the labourers as buyers of commodities are important for the market. But as sellers of their own commodity—labour-power—capitalist society tends to keep them down to the minimum price.' (1882/1967: 316, f32) The contradiction is between these two necessities, as capital can't do both at the same time, so it either switches between the two or finds other ways to smooth over or delay the contradiction, such as credit.

The postdigital era allows for a different response to the contradiction: by linking production more tightly to realization. Nick Srnicek gives the example of chemical manufacturer BASF SE, whose 'assembly line is capable of individually customising every unit that comes down the line: individual soap bottles can have different fragrances, colours, labels, and soaps, all being automatically produced once a consumer places an order' (Srnicek 2017: 66). Under Fordism, commodities were mass produced and the planning process was distinct from the production process. For example, planners would design and propose commodities, test them with certain markets or focus groups, and then send the designs to production.

Under post-Fordism, this arrangement is not only linked together but actually *inverted* through information and communication technologies, which ensure 'the communication is the smooth running of the entire production process' so that the relationship between production, planning, and consumption is turned upside down (Marazzi 1994/2011: 21). In terms of distribution and consumption, ICTs collect data that determine future production instantaneously, like scanners at supermarkets and credit cards and demand precedes production. This is because the market for commodities assumed in Taylorist production is no longer expanding absolutely but only relatively, in that there's a 'compression of purchasing power' that makes it so that production and demand are tightly united so that the former is determined on the spot and in response to the market.

One nodal point is the demand for ever-more transparency, for when the market is limited 'contingency reigns, the unforeseeable becomes the rule and everything rests on immediate adaptability' (Marazzi 1994/2011: 45; Ford 2021b). Who can really predict the next trend, which surely won't last too long? Unable to do so, capital requires the production of labor-power that is rapidly adaptive and flexible. In other words, capital requires a particular pedagogical *form* through which students and subjects generally acquire and actualize skills, knowledges, habits, beliefs, and so forth at the service of global capital (Peters, Jandrić, and Means 2019).

With the capitalist landscape described above, which is flexible, adaptable, and organized around the unpredictable, postdigital ecopedagogy produces lifelong learners who continually re-took and re-skill ourselves in response the shifting demands of capital. Moreover, labor market competition compels us to constantly *individualize* ourselves and *express* our uniqueness as we struggle for the few jobs available.

Thus, capital carries with it an incessant demand for more transparency. This is always couched in progressive-sounding language, just how imperialist wars today are couched in humanitarian rhetoric. For example, Emily Nelson and Jennifer Charteris document how the insistence on 'student voice' is really part of a project of commodifying students and transforming them into subjects 'both "authoritative and "accountable" for their own learning' (2021: 215). Teaching is 'oriented toward students' needs and interests … for student consumption' (Lewis 2020: 39). Pedagogy is supposed to *respond* to students' expressed needs and desires, which, as we saw with Calder and Otrel-Cass, is a fundamental component of educational technologies. We're not arguing that teachers should never respond to students' needs but arguing against the *demand* that students articulate their needs—as if they, or we, could actually *know* them. Thus, even as they conclude by noting the link between personalization and 'layers of control', they ultimately end on a hopeful note because 'social media are influential in opening up space for openness (and across borders)' (Calder and Otrel-Cass 2021: 454).

The problem is that the structures of power in technologies and social media aren't transparent. Yet to call for more transparency is to reinforce capital's drive for more knowledge it can capture and put into circulation and rests upon the individualized form of subjectivity. This aligns learning technologies that promote 'personalization' and 'customization' with corporate interests, as the technologies owned and pushed by corporations like Netflix and Google, who capture and then own data.

## Postdigital Ecopedagogy Against Capital: From the Transparent Individual to Thought of Individuation

The presupposition of the individual as the unquestionable form of the subject is the very thing that Marx (1939/1973) criticized bourgeois political economists for: taking this form and imagining it 'as an ideal, whose existence they project into the past. Not as a historic result but as history's point of departure' (83). The individual form here arose in the eighteenth century as a particular form of subjectivity, and capital has incessantly worked to reproduce it in order to fight against the gravediggers it creates: the collective laborer. As capitalism develops, the category of productive labor widens as labor becomes collective: 'The product ceases to be the direct product of the individual, and becomes a social product, produced in common by a collective labourer.' (1867/1967: 476)

Indeed, under capitalism no product (including services or other immaterial commodities) can be attributed to any particular individual. Yet there's a fundamental contradiction for capital because if workers—a category that includes those with and without work, engaging in waged or unwaged work—realize their collectivity they'll realize the insufficiency of capitalism and their ability to—as a collective—overthrow the capitalist mode of production. One task of alternative postdigital ecopedagogy is thus, to borrow the words of Mario Tronti, 'continually recompose the material figure of the collective worker against capital, which itself seeks to dismantle this figure' (2019: 30).

Capitalist postdigital ecopedagogy works to reinforce individuality to prevent the collective class of working and oppressed people from uniting into many. Our postdigital landscape, however, produces ever-expansive networks that link different subjects together. As such, the contradiction fundamental to capitalism is only displaced to a different, even higher level. This is why Jodi Dean claims the individual subject-form is failing today. Importantly, she argues that 'the technologies that further individuation … provide at the same time an escape from and alternative to individuation: connection to others, collectivity' (2016a: 64). In other words, as we take to social media to post our different 'takes' on events and articles, we at the same time *repost* those of others. And the singular post is not what we desire: we're interested in retweets and reposts.

Dean (2016b) gives an interesting example in an essay on selfies. 'In communicative capitalism', she writes,

> images of others are images of me. Each day, millions of tweets include text saying 'this is me' or 'then, I'm like' with an accompanying GIF of someone who is not actually them. I convey who I am by sharing a photo of someone else. My identity or sense of self is not so singular or unique that it can only stand for itself, only represent itself. It's interchangeable with others. Their faces and expressions convey my own. Not only do I see myself in others, I present others as myself. The face that once suggested the identity of a singular person now flows in collective expression of common feelings. (Dean 2016b)

We feel joy as we immerse ourselves in the networks and take part in collective activity. This is a postdigital experience in which the boundaries between our analog and digital embodiments are blurred and ultimately indecipherable. My—and our—subjectivity is sensed *materially* and *virtually* at once.

Yet just as the postdigital blurs the lines between the digital and analog, so too might it blur the lines between the individual and collective, thereby rendering the choice between the two alternatives false. This is the line pursued by Paolo Virno and others who, following Marx, insist that 'the individual is a *result*, not a presupposition' (2021: 80). One can't understand subjectivity and its relationship to ecopedagogy by taking the individual as it is already conceptualized. The individual is the result of a process of *individuation*, which means, in turn, that there's a *pre-individual* stratum of reality, a common and public space from which individuations result.

For Virno, this only 'becomes a real possibility … in the age of the technological reproducibility of experience and the absolute centrality of technological-scientific intelligentsia within material production' (2021: 81). Under Taylorist production,

machinery determines the labor process. 'Labor adjusts itself, in a memetic way, to the system of efficient causes: not only does it comply with it but it also interiorizes it in its procedures and lets itself be defined by it.' (102) The separation of planning and execution, embedded in machinery at this age, however, is broken under post-Fordism thanks to new digital technologies.

Unlike machinery, information technologies 'do not produce possible states of affairs, but the formal possibility of as yet undetermined states of affairs', so that they—unlike industrial machines—'do not in any way indicate *what* eventuality will be realized' (68). 'The identity between rules for planning and rules for performing', Virno continues, 'diminishes the validity of a distinction between the two moments and implies a significant overlapping between intention and realization' (109). The forces of production under contemporary capitalism are a pre-individual, common terrain of individuation.

The classic example of pre-individual commonality 'is the way in which crystals are the crystallization of a solution, which is to say the individuation of conditions, compounds, and elements that exist initially in flux', as Jason Read (2015: 109) writes in his book on transindividuality. 'What is called pre-individual exists', he continues, 'primarily as a metastable state, as a set of possibilities and relations' and 'individuation is in part the reconciliation of the tensions and potentials of this metastable state' (109). The pre-individual common is not 'pre' as in *prior* to the individuated individual because individuation is never final or complete. Thus, the digital technologies of postdigital ecopedagogy provide a pre-individual common syntax from which infinite potential individuations can emerge. This is also true for Gilbert Simondon (2020), from whose work Virno develops his theories. For Simondon, 'any technological device is made up of multiple components' and 'it is often difficult to draw a line of demarcation between one device and others' (Read 2015: 107–108).

The problem with capitalist postdigital ecopedagogy is that it limits individuation to the capitalist form of individuality and reinforces our conception and experience of individuality as a finalized starting point rather than an end point. The tracking devices worn by workers and utilized by corporations and schools, for example, limit the process of individuation to a quantifiable and transparent form of subjectivity. The pre-individual resources from which we can draw are owned and controlled by capital rather than people. The political task is thus to wrest such technologies from capital and the pedagogical task is to demonstrate—through practice—the infinite possibilities of individuation.

## Disorienting Individuality and Knowledge

If, as Virno says, the human subject doesn't leave behind its own origins as an individual but is continually haunted by them, then the collective prehistory of the subject 'is inscribed in every single historical moment' (2003/2015: 93). Postdigital ecopedagogies against capital find their educational potentiality within such a

haunting that permeates every moment. Our positionality within the postdigital necessitates a reorienting of the subjective forces of political struggles that untangles us and society from capital's algorithmic individuating apparatuses. For such a practice to occur, for us to realize the possibility of individuations that are more than accumulations of scores and metrics, demands a disorientation and reorientation. Capitalist postdigital pedagogic technologies, in other words, orient us in particular ways. Sara Ahmed's *Queer Phenomenology* is helpful here, as she writes that 'the repetition of the tending *toward* is what identity "coheres" *around* (= tendencies)', so rather than 'inherit our tendencies … we *acquire* our tendencies from what we inherit' (2006: 129). The ability to do something isn't *in* the body, but in the spatial and social position of the body and is determined by the things that are close and easy to take up.

One practice of postdigital ecopedagogy could be hacking the technologies we find near us at work and school. Hacktivism shifts digital autonomy to the hands of 'netizens'. Rather than utilizing technologies to guide, generate knowledge and data about, and individuate subjects to pedagogically reinforce capitalist relations of exploitation, hacking allows for a disruption of this educational and political process. Just as the GoRando software collects data for private corporations, hacking interrupts and reorients the pre-individual substratum of postdigital society. As we stated earlier, capital requires individuals that will acquire skills in order to be flexible and adaptable for its ever-evolving demands. What disrupts this concept of the lifelong learner—as shaped by individualization, personalization, and capitalization—is the pedagogy of hacking.

The difference is not between a pedagogy guided by ends or pure means (e.g., Ford 2017), as hacking is goal-oriented, although such goals do not remain linear. Drawing on Deleuze, Tyson Lewis and Daniel Friedrich write that hacking is a process akin to plugging something 'into multiple networks of signs in order to unleash intensified flows of becoming' (2016: 243). Hacking thereby 'disrupts, disorganizes, and interrupts the good sense of the law and the law of good sense by inserting difference into the perceptual distribution of the same' (244). Capital's postdigital ecopedagogy presents technologies as neutral or as 'good sense' and, in the same moment, presents subjectivity as individual and knowable.

Hacking doesn't reject the individual but rather opens us to other registers, replacing the individual with the process of individuation. Hacking, that is, 'repositions the very possibility of determining functions and meanings back into the common—a common that always stand sin excess of any given law of good sense' (246). Digital technologies are never determined solely by the political and subjective coordinates in which they operate, and hacking reveals their limitless potentiality by demonstrating that technologies and subjectivities can be more and different than they are. The argument here is *not* a call for digital inclusion, as 'there is little evidence either of forms of *resistance* being acquired in relation to personal data and human rights, despite a multi-agency approach to furthering digital inclusion' (Hayes et al. 2021). Inclusion assumes the structures that exclude can and should allow more participation, whereas hacking disrupts these very structures, which aren't worthy of our inclusion.

Moreover, hacking doesn't reject transparent knowledge but augments it with the opacity of *thought*. Here, we affirm Han's assertion that 'in contrast to calculation, thinking is not transparent' (2015: 30). Calculation requires surveillance, data collection, postdigital personalized and customizable devices. It reduces students and teachers and all of us to *individuals* via numerical inputs and outputs. Organized around the demand for actualization, calculation produces transparent *knowledge*. In other words, pedagogy is currently structured around visibility and transparent knowledge, which reinforces the capitalist requirement to eliminate all *distance*, the demand that guides postdigital educational technologies and pedagogies. 'Illumination is exploitation. Overexposing individual subjects maximizes economic efficiency', as Han writes (2015: 49). Capitalist technologies detect and monitor flows across surfaces and between subjects and our broader ecological systems so that our contagious affects can be used to, for example, market products more effectively to us. Consider eye-tracking technologies that use 'new methods of persuasion that aim to capture multisensory data from consumer testing' (Sampson 2012: 173). They track the eye to figure out where attention is, but they're also more generally interested in feeling. It thus seems like it's hard to drift, to wonder, to *think* because we're always being tracked. Yet, Tony Sampson reminds us, 'digital contagions and glitches will seep in from time to time and remind the end user of what a messy, patch-up job the network can be' (188). Viruses can get us lost, immerse us in *thought*. Instead of differentiating calculation from thinking, the pedagogical demand is to differentiate knowledge from thought (see Ford 2021a).

The transparent society is *pornographic* for Han because 'pornography has no interiority, hiddenness, or mystery' (26). The pornographic is the paradigmatic example of the terror of transparency, of the obliteration of the secret. The most private parts of bodies in relation are, thanks to digital technologies, made increasingly explicit visually and aurally. Pornography, that is, signifies a world in which *thinking*, in which the unknown disindividuated ecological subject is annihilated. There is no tolerance for the unknown, which is reduced to something that can and *must* be known (Ford 2020). Yet thinking is precisely that which *can't* be known, that which remains ineffable.

Grebowicz's work on Internet pornography can help connect knowledge to the kind of pedagogy we imagine. The typical arguments – liberal and radical – about pornography are that it's didactic (instructional) ideological (content), and repetitive. The problem with pornography, Grebowicz counters, isn't that it didactically relays violent norms and acts, 'but that it teaches conformity and subjection to social success rather than risk and invention' (2015: 119). The pedagogy of pornography she proposes is one in which we move the Internet from the realm of 'social meaning' to 'transgression and risk'. One example is creative viruses that 'risks damage' to the technology and makes 'information … less immediate and available, and instead brings with it imaginaries of unwelcome invasion and contagion' (122). To disindividuate ourselves, we should embrace the contagion that defines human existence.

Viruses are 'out there' but they get in us. 'In turn, bodies are not closed systems—as bodies, we take in the *other* in all manner of ways—exchanges of breath,

blood, saliva, and more.' (Ferri 2018: 7) Yet this isn't just a metaphor. Ferri has an autoimmune disease, and this is a real concern for her. She wants to theorize based on her embodiment of autoimmunity, which reveals the limits of conceptions of contagion, immunity, and protection—or the individual form of subjectivity. Autoimmune diseases prevent the body from distinguishing itself from others. Yet the body is *never* the self, and what happens when the body is both the victim and the invader? This is why the metaphor of autoimmunity 'has the potential to deconstruct dichotomies of "us versus them"' because 'if the body is a battleground, the enemy is the selfsame' (11). This leads Ferri to conceptualize the autoimmune body as 'confused' and as a place of 'mystery' and 'wonder' (13) — or a place of *thought*.

## Conclusion

Capitalist postdigital ecopedagogies limit subjective and political potentials by reproducing, shoring up, and naturalizing individuality as a finished product that serves as the entry point for sociality and that requires the incessant production of knowledge and relentless attacks on the unknown. Educational technologies intensify this process, subjecting almost everything to quantification, measurement, and surveillance. At the same time, the prominent responses to these pedagogies are lackluster and disproportional to the major transformations and power of capital. They want to 'create the social conditions in which these capacities can develop and flourish', invest in public education, and use technology in the interests of 'progressive, democratic, and sustainable communities and futures' (Roberts-Mahoney, Means, and Garrison 2016: 418). Means' response is more adequate in that he calls for 'mass intellectuality' which 'reflects a vision of education as a commons—a collaborative process and a social relation rather than as a machine to be optimized and calculated' (2018: 167). The neglected dimension here is the *postdigital pedagogical* forms that can move forward these political projects, which have been the focus of our project.

The democratization of capitalist educational technologies leave the underlying pedagogical demand for transparency, knowledge, and individuality untouched, and thereby reproduces the very logics the democratic proponents denounce. Anti-capitalist postdigital ecopedagogies don't *oppose* or *deny* transparency, knowledge, and individuality but rather open us up into new registers through presenting the unfinished *processes* of individuation and disindividuation and mobilizing the *contagion of thought* as a stay against transparency and knowledge (see Pappachen and Ford 2022). When the virus grips our digital screens, we're sent into a state of shock and wonder as communication continues without any identifiable content. Faced with the opacity and uncertainty of the virus-infected screen, whether it's glitching or blank, exerts a pedagogical force in which communicability occurs without communication, thinking occurs without knowledge, and the collective subject remains suspended between individuation and disindividuation.

# References

Ahmed, S. (2006). *Queer Phenomenology: Orientations, Objects, Others*. Durham, NC: Duke University Press.

Butler, A. (2021). Simon McBurney, Theatrical Soundscapes, and Postdigital Communities. *New Theatre Quarterly*, *37*(1), 58–70. https://doi.org/10.1017/S0266464X20000792.

Calder, N., & Otrel-Cass, K. (2021). Space Exploration: Approaches to Inhabiting Digital Spaces and their Influence on Education. *Postdigital Science and Education, 3*(2), 444–463. https://doi.org/10.1007/s42438-020-00199-0.

Dean, J. (2016a). *Crowds and Party*. New York: Verso.

Dean, J. (2016b). Faces as Commons: The Secondary Visuality of Communicative Capitalism. Open!, 31 December. https://onlineopen.org/faces-as-commons. Accessed 15 August 2021.

Fawns, T. (2019). Postdigital Education in Design and Practice. *Postdigital Science and Education, 1(1), 132–145.* https://doi.org/10.1007/s42438-018-0021-8.

Ferri, B. A. (2018). Metaphors of Contagion and the Autoimmune Body. *Feminist Formations*, *30*(1), 1–20.

Ford, D. R. (2017). Studying like a Communist: Affect, the Party, and the Educational Limits to Capitalism. *Educational Philosophy and Theory, 49*(5), 452–461. https://doi.org/10.1080/00131857.2016.1237347.

Ford, D. R. (2020). Errant Learning in Foams: Glissant, Sloterdijk, and the Foam of Pedagogy. *Studies in Philosophy and Education*, *39*(3), 245–256. https://doi.org/10.1007/s11217-020-09719-8.

Ford, D. R. (2021a). *Inhuman Educations: Jean-François Lyotard, Pedagogy, Thought*. Boston, MA: Brill.

Ford, D. R. (2021b). *Marxism, Pedagogy, and the General Intellect: Beyond the Knowledge Economy*. New York: Palgrave Macmillan.

Grebowicz, M. (2015). *Why Internet Pornography Matters*. Stanford, CA: Stanford University Press.

Gregg, M. (2018). *Counterproductive: Time Management in the Knowledge Economy*. Durham, NC: Duke University Press.

Han, B-C. (2015). *The Transparency Society*. Stanford, CA: Stanford University Press.

Hayes, S., Connor, S., Johnson, M., & Jopling, M. (2021). Connecting Cross-Sector Community Voices: Data, Disadvantage, and Postdigital Inclusion. *Postdigital Science and Education*. https://doi.org/10.1007/s42438-021-00251-7.

Jandrić, P. (2019). The Three Ages of the Digital. In D. R. Ford (Ed.), *Keywords in Radical Philosophy and Education* (pp.161–176). Leiden: Brill/Sense. https://doi.org/10.1163/978900440467_012.

Jandrić, P., & Ford, D. R. (2020). Postdigital Ecopedagogies: Genealogies, Contradictions, and Possible Futures. *Postdigital Science and Education*. https://doi.org/10.1007/s42438-020-00207-3.

Jandrić, P., Knox, J., Besley, T., Ryberg, T., Suoranta, J., & Hayes, S. (2018). Postdigital Science and Education. *Educational Philosophy and Theory, 50*(10), 893–899. https://doi.org/10.1080/00131857.2018.1454000.

Kivotidis, D. (2021). Break or Continuity? Friedrich Engels and the Critique of Digital Surveillance. *triple C, 19*(1), 87–112. https://doi.org/10.31269/triplec.v19i1.1213.

Lewis, T. E., & Friedrich, D. (2016). Educational States of Suspension. *Educational Philosophy and Theory, 48*(3), 237–250. https://doi.org/10.1080/00131857.2015.1004153.

Lewis, T. E. (2020). Walter Benjamin's Antifascist Education: From Riddles to Radio. Albany, NY: SUNY Press.

Manolev, J., Sullivan, A., & Slee, R. (2019). The Datafication of Discipline: ClassDojo, Surveillance and a Performative Classroom Culture. *Learning, Media and Technology, 44*(1), 36–51. https://doi.org/10.1080/17439884.2018.1558237.

Marazzi, C. (1994/2011). *Capital and Affects: The Politics of the Language Economy*. Trans. G. Mecchia. Los Angeles, CA: Semiotext(e).

Marx, K. (1867/1967). *Capital: A Critique of Political Economy (vol. 1): The process of capitalist production*. Trans. S. Moore & E. Aveling. New York: International Publishers.

Marx, K. (1882/1967). *Capital: A Critique of Political Economy (vol 2): The Process of Circulation of Capital*. New York: International Publishers.

Marx, K. (1939/1973). *Grundrisse: Foundations of the Critique of Political Economy (Rough Draft)*. Trans. M. Nicolaus. New York: Penguin Classics.

Marx, K., & Engels, F. (1970). *The German Ideology: Part One*. New York: International Publishers.

Means, A. J. (2018). *Learning to Save the Future: Rethinking Education and Work in an Era of Digital Capitalism*. New York: Routledge.

Moore, P., & Robinson, A. (2016). The Quantified Self: What Counts in the Neoliberal Workplace. *New Media & Society, 18*(11), 2774-2792. https://doi.org/10.1177/2F1461444815604328.

Nelson, E., & Charteris, J. (2021) Student voice research as a technology of reform in neoliberal times. *Pedagogy Culture & Society, 29*(2), 213–230. https://doi.org/10.1080/14681366.2020.1713867.

O'Neil, C. (2016). *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*. New York: Broadway Books.

Pappachen, M. S., & Ford, D. R. (2022). Spreading Stupidity: Disability and Anti-Imperialist Resistance to Bio-Informational Capitalism. In M. A. Peters, P. Jandrić, & S. Hayes (Eds.), *Bioinformational Philosophy and Postdigital Knowledge Ecologies* (pp. 237–253). Cham: Springer. https://doi.org/10.1007/978-3-030-95006-4_13.

Peters, M. A., Jandrić, P., & Means, A. J. (2019). *Education and Technological Unemployment*. Singapore: Springer.

Read, J. (2015). *The Politics of Transindividuality*. Chicago, IL: Haymarket Books.

Regine. (2017). Obfuscates your Feelings on Facebook and Defeat its Algorithms in the Process. We Make Money Not Art, 13 February. https://we-make-money-not-art.com/obfuscates-your-feelings-on-facebook-and-defeat-its-algorithms-in-the-process. Accessed 13 August 2021.

Roberts-Mahoney, H., Means, A. J., & Garrison, M. J. (2016). Netflixing Human Capital Development: Personalized Learning Technology and the Corporatization of K-12 Education. *Journal of Education Policy, 31*(4), 405–420. https://doi.org/10.1080/02680939.2015.1132774.

Saltman, K. J. (2017). *Scripted Bodies: Corporate Power, Smart Technologies, and the Undoing of Public Education*. New York: Routledge.

Sampson, T. D. (2012). *Virality: Contagion Theory in the Age of Networks*. Minneapolis and London: University of Minnesota Press.

Simondon, G. (2020). *Individuation in Light of Notions of Form and Information, (vol. 1)*. Minneapolis, MN: University of Minnesota Press.

Sinclair, C., & Hayes, S. (2019). Between the Post and the Com-Post: Examining the Postdigital 'Work' of a Prefix. *Postdigital Science and Education, 1*(1), 119–131. https://doi.org/10.1007/s42438-018-0017-4.

Smith, N. (1984/2008). *Uneven Development: Nature, Capital, and the Production of Space*. Athens, GA: The University of Georgia Press.

Srnicek, N. (2017). *Platform Capitalism*. Cambridge: Polity Press.

Tronti, M. (2019). *Workers and Capital*. Trans. D. Broder. New York: Verso.

Virno, P. (2003/2015). *When the Word Becomes Flesh: Language and Human Nature*. Trans. G. Mecchia. South Pasadena, CA: Semiotext(e).

Virno, P. (2021). *Convention and Materialism*. Trans. L. Chiesa. Cambridge, MA: The MIT Press.

Zuboff, S. (2019). *The Age of Surveillance Capitalism: The Fight for a Human Future and the Frontier of Power*. New York: Public Affairs.