EDUCATIONAL THEORY

PLATFORM URBANISM, CREATIVITY, AND THE NEW EDUCATIONAL FUTURISM

Alexander J. Means

Department of Educational Foundations
University of Hawai'i at Mānoa

Abstract. This essay examines speculative narratives reflective of Silicon Valley and corporate technology culture that project creative scenarios and sociotechnical futures for cities and citizens, whereby learning and creativity become global imperatives to defer future risk within a new digital urbanism. Taking inspiration from Fredric Jameson's transhistorical dialectics, Alexander J. Means assembles a cognitive map of emerging sociotechnical projections of urbanity and education through three frames — solutionism, collaborationism, and techno-realism — linking each to specific conceptualizations of creativity and learning. Means argues that these projections are subsumed within an ontology of the present, and they therefore fail to index the complexities that drive historical and technological change, particularly the deep structure of power and conflict immanent to late capitalism as a world-historical system. Such an ontology is ultimately rooted in imaginative displacement, a futurism without futurity, where time is rendered a static feedback loop of present systems and processes.

Key Words. late capitalism; smart city; creativity; learning futures; digital economy; urban education

Introduction: A Conceptual GPS

We live in a time of speed and disorientation, marked by acceleration of technology and a deepening complexity of global problems that require creative solutions.[1] Conspiracy theories, nostalgic longing for the past, and utopian promises of technological transcendence uneasily commingle with dystopian scenarios of mass automation of livelihoods, runaway inequality, and ecological chaos. A familiar set of narratives has emerged in the last decade on how to address these global problems popularized at TED Conferences and Ideas Festivals and undergirded by the Promethean ambitions of Silicon Valley. First, the urban sphere is said to be the principal *location* of enacting progress in the twenty-first century.[2] We inhabit a rapidly urbanizing planet. Cities are growing by 60 million per year globally. By 2050, they will constitute over 60 percent of the world's population, and at just 2 percent of the world's land mass, cities will consume about 75 percent of the world's resources.[3] More than any other, the twenty-first century will be an urban century. Second, the *driving force and mechanism* of achieving a more sustainable future is said to be new technology, and specifically, the *digital integration and optimization* of all sectors of human activity and the physical environment.[4] It

1. On the question of speed and disorientation within the global space of technology, see Paul Virilio, *The Information Bomb: Radical Thinkers* (New York: Verso, 2000). In relation to education, technology, and capitalism, see my book, Alexander J. Means, *Learning to Save the Future: Rethinking Education and Work in an Era of Digital Capitalism* (New York: Routledge, 2018).

2. Shane Mitchell, Nicola Villa, Martin Stewart-Weeks, and Anne Lange, "The Internet of Everything for Cities: Connecting People, Process, Data, and Things to Improve the 'Livability' of Cities and Communities" (San José, CA: CISCO, 2013).

3. United Nations and UNDESA, "World Urbanization Prospects: The 2014 Revision, Highlights," report (New York: United Nations Department of Economic and Social Affairs, 2014).

4. Jeremy Rifkin, *The Zero Marginal Cost Society: The Internet of Things, the Collaborative Commons, and the Eclipse of Capitalism* (New York: St. Martin's Press, 2014).

is now frequently projected that artificial intelligence, machine learning, sensors, big data, and feedback loops will create hyperefficiencies that enable the innovative resolution of seemingly intractable global problems. Third, creativity is said to be the principal *human capability* required for the twenty-first century.[5] The ability to innovate and invent and therein add economic value to new technology is positioned as central for the design of sustainable cities and for resolving challenges ranging from the scarcity of resources to global poverty. Fourth, learning is framed as the principal *imperative* of the here and now.[6] A redesign of education alongside emerging technology is thought necessary to ensure development of the creative, aesthetic, technical, scientific, and innovative capacities required for achieving a vibrant future.

These narratives reflect a speculative orientation immanent to Silicon Valley and corporate culture that projects creative scenarios and sociotechnical futures for cities and citizens, whereby learning and creativity become global imperatives to defer future risk within an emerging digital urbanism. Of course, urbanity, digitalization, creativity, and learning are not transparent concepts, and, as such, require critical analysis. A number of prominent cultural theorists and philosophers have argued that one of the defining features of our contemporary "late," "liquid," or "post" modern condition is a general sense of disorientation stemming from an inability to locate dominant representations and narratives within their world-historical coordinates.[7] For Fredric Jameson, this collapse of historicity generates profound *imaginative stasis* in the cultural apprehension of spatiality and temporality, where *projected futures*, like those elaborated above on the sociotechnical trajectory of urban creativity and learning, are limited to a *static horizon* — an

5. Gerard J. Puccio, Marie Mance, Laura Barbero Switalski, and Paul D. Reali, *Creativity Rising: Creative Thinking and Creative Problem Solving in the Twenty-First Century* (Buffalo, NY: International Center for Studies in Creativity, 2012).

6. A representation of this logic can be found in Sir Ken Robinson, *Out of Our Minds: Learning to Be Creative*, 2nd edition (Mankato, MN: Capstone, 2011). For critical analysis of contemporary discourses of learning in educational theory, see Maarten Simons and Jan Masschelein, "The Governmentalization of Learning and the Assemblage of a Learning Apparatus," *Educational Theory* 58, no. 4 (2008): 391–415; and Tyson E. Lewis, *On Study: Giorgio Agamben and Educational Potentiality* (New York: Routledge, 2013).

7. Zygmunt Bauman, *The Individualized Society* (Malden, MA: Polity, 2001); Ulrich Beck, *World at Risk* (Malden, MA: Polity, 2007); and Bernard Stiegler, *States of Shock: Stupidity and Knowledge in the Twenty-First Century* (Malden, MA: Polity, 2015). By "world-historical coordinates," I am referring specifically to Fredric Jameson's notion of "totality" as an aggregation of economic, social, psychological, political, ideological, and ecological relationships as they intertwine, overlap, and dialectically interpenetrate and unfold across global space and time. See Fredric Jameson, *Postmodernism, or, The Cultural Logic of Late Capitalism* (Durham, NC: Duke University Press, 1991).

ALEXANDER J. MEANS is Assistant Professor in the Department of Educational Foundations, University of Hawai'i at Mānoa, 1776 University Ave., Wist Hall, Department of Educational Foundations, Honolulu, HI 96822; e-mail <meansaj@hawaii.edu>. His research interests include educational theory, sociology of education, and education policy.

endless *repetition of surface effects* dissociated from their animating foundations in late capitalism and its global pretension as an inevitable and timeless system. As an alternative, Jameson offers the concept of cognitive mapping as an "aesthetic practice" for linking consciousness, representation, and experience "to that vaster and properly unpresentable totality, which is the ensemble of society's structures as a whole."[8] Drawing on the urban planner Kevin Lynch and his text *The Image of the City*, Jameson describes cognitive mapping as a "pedagogical" and/or "subjective" process of constructing mental images and diagrams of the city so as to acquire strategic foresight and agency in urban navigation.[9] At a higher level of abstraction, he transcodes this aesthetic representational schema into the realm of analytical thought and perception, through incorporation of the Althusserian conception of ideology as "the representation of the subject's *Imaginary* relationship to his or her *Real* conditions of existence."[10]

While Jameson's original formulations were written on the cusp of an immense dilation of global capitalism wrought by the end of the Cold War and the turn to neoliberal prescriptions, his call to historicize and develop cognitive maps provides a basis for transhistorical critique, or what Jeffrey Nealon, updating Jameson's theoretical apparatus within the cultural logics of "just-in-time capitalism," has referred to as a "hermeneutics of situation."[11] In what follows, I take inspiration from Jameson's transhistorical critique and assemble a cognitive map of emergent sociotechnical representations of urbanity, linking them to specific conceptualizations of creativity, learning, and futurity. These sociotechnical models are taken as "ideal-types" in the sense meant by the sociologist Max Weber, heuristic devices useful for generating abstract generalizations about specific knowledge formations.[12] They, therefore, certainly do not exhaust the innumerable discourses currently animating urban and educational change. My analysis here is in part descriptive and in part analytical and speculative. Ultimately, my aim is to highlight different ways educational and social theorists might make sense of the modulating historical coordinates of urban education in relation to emerging sociotechnical futures.

From Creative Cities to Platform Urbanism: Semiocapital, Computational Logic, and Future Deferral

The creative city emerged in the late 1990s and early 2000s among new urban planners, economists, and policymakers informed by a broader "end of history" ethos associated with the post–Cold War shift to neoliberal globalization

8. Jameson, *Postmodernism*, 51.

9. Ibid., 54.

10. Ibid., 51.

11. Jeffrey Nealon, *Post-Postmodernism: Or, the Cultural Logic of Just-in-Time Capitalism* (Stanford, CA: Stanford University Press, 2012).

12. Max Weber, *The Theory of Social and Economic Organization*, trans. A. M. Henderson and Talcott Parsons (New York: Oxford University Press, 1947).

and the simultaneous proliferation of "knowledge economy" and "information revolution" discourses.[13] In the creative city, creativity is imagined as an inventive milieu and aesthetic sensibility conducive to economic valorization and entrepreneurial urban development.[14] Similarly, in the creative city, learning is imagined as a means of competitive self-actualization and social production of innovative capacities directed toward entrepreneurial calculation, serving what Franco Berardi evocatively refers to as "semiocapitalism" — a vector of contemporary capitalism that "takes the mind, language and creativity as its primary tools for the production of value."[15]

The creative city is associated most prominently with the new urbanist Richard Florida and his urtext on creative urbanism, *The Rise of the Creative Class*.[16] In Florida's view, creativity has become the "defining feature of economic life. … [S]ystems have evolved to encourage and harness it — because new technologies, new industries, new wealth and all other good economic things flow from it."[17] Florida's theory of creative urbanism was largely a simulacra of the creative web of community relations that defined the postwar urbanism of Jane Jacobs and certainly owed little to the transgressive urban creativity celebrated by those like the Situationist International or the Marxist humanist Henri Lefebvre. It also was not a new form of god-eye urbanism in the mold of Le Corbusier or Robert Moses. Rather, Florida's creative city reflected what Friedrich Schiller once referred to as "the business spirit,"[18] based on three key thinkers and assumptions: (1) Friedrich Hayek's view that capitalism is an eminently creative and superior information processing machine capable of efficient coordination of decentralized spontaneous activity;[19] (2) Joseph Schumpeter's view that the entrepreneur is the primary creative force within capitalism, engaging in "creative destruction,"

13. For a genealogy of the creative city, see Gert-Jan Hospers, "Creative Cities: Breeding Places in the Knowledge Economy," *Knowledge, Technology, and Policy* 16, no. 3 (2003): 143–162. By "end of history," I am referring to Francis Fukuyama's declaration in the early 1990s that with the fall of "actually existing" communism, questions over alternative world-historical frameworks and sociopolitical formations came to a teleological conclusion with the triumph of self-regulating capitalism and (neo)liberal democracy.

14. For a discussion of the shift from postwar urban managerialism to postindustrial urban entrepreneurialism, see David Harvey, "From Managerialism to Entrepreneurialism: The Transformation of Urban Governance in Late Capitalism," *Geografiska Annaler* 71, no. 1 (1989): 3–17.

15. Franco "Bifo" Berardi, *The Soul at Work: From Alienation to Autonomy* (Cambridge, MA: MIT Press, 2009), 21.

16. Richard Florida, *The Rise of the Creative Class: And How It's Transforming Work, Leisure, Community, and Everyday Life* (New York: Basic Books, 2002). For a brilliant analysis of Florida's creative city in relation to neoliberalism and urban planning, see Jamie Peck, "Struggling with the Creative Class," *International Journal of Urban and Regional Research* 29, no. 4 (2005): 740–770.

17. Florida, *The Rise of the Creative Class*, 21.

18. Friedrich Schiller, *On the Aesthetic Education of Man* (New York: Penguin, 2016).

19. Friedrich Hayek, "The Use of Knowledge in Society," *American Economic Review* 35, no. 4 (1945): 519–530.

or the innovative replacement of older market patterns with new ones;[20] and (3) Paul Romer's view that economic growth is the overarching mechanism of social progress fueled by "endogenous" factors of human capitalization and new technology and creative innovation.[21] For Florida, education is central to fulfilling the promise of creative urbanism exemplified by cities such as Toronto, San Francisco, Melbourne, and Berlin, which have leveraged their position as research hubs with knowledge production, the arts, design, finance, and start-up cultures to stimulate growth and navigate the transition to information economies. Schools and universities are positioned here as central in training and attracting a class of creative workers — a means of transforming human capability to revalorize urbanity to serve markets and innovation.[22]

In 2017, Florida published a new treatise titled *The New Urban Crisis*, where he laments that his ideas have unwittingly translated into a "winner-take-all-urbanism," defined by displacement of the urban middle class and the poor due to gentrification, feverish property speculation, and soaring costs of housing; growing economic inequality between the super-rich and the rest; a banal urban conformity of luxury, tourist-oriented neighborhood renewal that has crowded out more authentic social relations; and the migration of urban problems to the suburbs.[23] It might be tempting to view Florida's apologia as signaling the last gasp of "end of history" urbanism — the fallen dream of a tidy Hegelian synthesis of semiocapitalism and hipster urbanization. However, the core assumptions of the creative city, such as the imperatives of human capitalization and entrepreneurship to urbanity remain, firmly intact and continue to influence the decisions of mayors and city planning professionals, while they are being reincorporated into a new set of speculative narratives and technical visions for city life and the future. Currently, creative urbanism is undergoing a renovation and is becoming entangled with what Ben Williamson aptly calls "sociotechnical imaginaries."[24] Creative cities are no longer conceived solely as dynamic global hubs of semiocapitalism populated by designers, techies, artisanal entrepreneurs,

20. Joseph A. Schumpeter, *Capitalism, Socialism, and Democracy* (New York: Routledge, 2003), 61.

21. Paul M. Romer, "The Origins of Endogenous Growth," *Journal of Economic Perspectives* 8, no. 1 (1994): 3–22. Also, for a helpful genealogy of these intellectual currents shaping Richard Florida's ideas and the creative economy in relation to education more broadly, see Michael A. Peters, "Education, Creativity, and the Economy of Passions: New Forms of Educational Capitalism," *Thesis Eleven* no. 96 (2009): 40–63.

22. Richard Florida, Gary Gates, Brian Knudsen, and Kevin Stolarick, "The University in the Creative Economy" (Creative Class Group, 2006), http://creativeclass.com/rfcgdb/articles/University_andthe_Creative_Economy.pdf.

23. Richard Florida, *The New Urban Crisis: How Our Cities Are Increasing Inequality, Deepening Segregation, and Failing the Middle Class — and What We Can Do about It* (Philadelphia: Basic Books, 2017). For a critical review of this book, see Sam Wetherell, "Richard Florida Is Sorry," *Jacobin*, August 8, 2017, https://jacobinmag.com/2017/08/new-urban-crisis-review-richard-florida.

24. Drawing on the field of science and technology studies, Williamson suggests that sociotechnical imaginaries refer to modes of dominant thinking concerning desired visions of social life and the future that are widely held, embedded in institutions and practices, and underwritten by technology narratives

tattooed baristas, and financial consultants, but are being reimagined by giant technology corporations, tech-enthused urbanists, and policymakers as "smart cities" and "sharable cities," indicative of a "computational" or "algorithmic" urbanism powered by Silicon Valley data platforms and its start-up "disruption" culture.[25]

Within this emerging model of platform urbanism, or what is often called the "smart city," creativity is simultaneously understood as a dynamic human capacity for the generation of value for urban economic growth and entrepreneurial development, and also as an inventive ambient force within a techno-euphoric vision of automated and optimized urban environments to manage everything from efficient traffic flows, to water usage, to the heating and cooling of buildings, to human health and education, to security and crime control.[26] The business spirit that animated Florida's creative city has modulated. Machine learning, sensor networks, optimizing algorithms, and big data will power creative urban development, providing an optimized, automated, and efficient platform for twenty-first century creativity and learning for urban economic valorization. According to urbanist and technology scholar Anthony Townsend, the smart city is a mode of platform urbanism that combines embedded sensor technology and algorithmic data processing with urban infrastructure and the everyday built environment. He writes, "Sensors, software, digital networks, and remote controls will automate the things we now operate manually. Where there is now waste there will be efficiency. Where there is now volatility and risk, there will be predictions and early warnings. Where there is crime and insecurity, there will be watchful eyes."[27]

Within this mode of platform urbanism, every interaction becomes a potential data point to be predicted, tracked, processed, and optimized through algorithms, data analytics, mobile apps, and embedded sensors. Platform urbanism imagines the city as a vast spatial and temporal terrain of locatable, measurable, and alterable data flows, feedback loops, and processing algorithms, enabling command of urban infrastructure like transportation and energy usage, combined with

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and innovations. Ben Williamson, "Silicon Startup Schools: Technocracy, Algorithmic Imaginaries and Venture Philanthropy in Corporate Education Reform," *Critical Studies in Education* 59, no. 2 (2016): 4–5. See also Ben Williamson, "Educating the Smart City: Schooling Smart Citizens through Computational Urbanism," *Big Data and Society* 2, no. 2 (2015).

25. See Tom Verebes, *Masterplanning the Adaptive City: Computational Urbanism in the Twenty-First Century* (New York: Routledge, 2013).

26. In this article, I use the term "platform urbanism" as opposed to "smart city" because I am not sure what is actually "smart" about the technocratic and instrumental vision of urbanity projected in much smart city discourse. New data technologies may indeed provide progressive and even revolutionary possibilities for urban life. However, it hardly seems a sign of "smartness" to reduce all of urban experience to automation, computation, efficiency, commercialism, and quantification, as the rhetoric of "smart city" boosters often does. In contrast, "platform urbanism" simply gestures toward the *idea* of cities as technology platforms that can be computed and mastered through interwoven data and algorithmic technologies.

27. Anthony Townsend, *Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia* (New York: W. W. Norton, 2013), 8.

real-time modeling of everyday urban life to promote efficiency, economic growth, and problem solving.[28] Such digital capabilities undoubtedly contain potential for realizing progressive aims and more sustainable cities in a world riven by conflict and inequality. However, as technology historian and sociologist Orit Halpern and her colleague Gökçe Günel have observed, what differentiates mainstream conceptualizations of platform urbanism from prior approaches to urban planning is not simply new applications of technology, but how technology registers with a particular mode of risk management, a deferral of future disaster that is detached from historical foundations and contextualized complexity, and operationalized via logics of urban computational rationality. "The idea of the smart city," they write, "is inextricably linked to notions of catastrophe, where the logic of the [urban] demo or test-bed becomes a means for responding to impending environmental, security, and financial destruction by constantly deferring this future from ever arriving."[29] Platform urbanity becomes a form of "temporal management that through its very practices and discourses evacuates any historical and contextual specificity of the catastrophe." They go on to explain,

> This joint logic of both repetitive incompletion and even failure joined with the preemptive anticipation of negative events is central to legitimating the on-going penetration of computation into the environment. It is precisely this evacuation of differences, temporalities, and societal structures, that most concerns us in confronting the incredible rise of ubiquitous computing and hi-technology infrastructures as solutions to the political, social, environmental and historical problems confronting urban design and planning.[30]

Technology companies are creating initiatives to bring a predictive, profitable, and efficient urbanity into being, such as IBM's "Smart Planet," Y Combinator's "New Cities," Siemens's "Sustainable Cities," and Cisco's "Internet of Everything." Test-bed prototypes like Songdo in South Korea have been built from the ground up while, more commonly, a growing number of cities (including London and Tokyo) are embedding smart platforms into existing systems. States are also heavily involved. For instance, the Narendra Modi government in India has pledged to create one hundred smart cities over the coming decades. Within these emerging schemas of computational urbanity and total informatics, questions of creativity and learning acquire a new sociotechnical dimension, connected to visions of technological optimization framed as global mitigation of future risks. Urban problems only recently "discovered" by Richard Florida such as urban inequality combined with growing concerns over financial meltdown and ecological rifts are here to be overcome through creative application of "smart" systems and the "smartification" of learning for creativity and innovation. While education remains understood as a process for producing the technical and entrepreneurial

28. Michel Foucault, *Discipline and Punish*: *The Birth of the Prison* (New York: Vintage Books, 1995); and Steven Poole, "The Truth about Smart Cities: In the End They Will Destroy Democracy," *The Guardian*, December 17, 2014.

29. Orit Halpern and Gökçe Günel, "Demoing unto Death: Smart Cities, Environment, and Preemptive Hope," *Fibreculture Journal* 29 (2017): 2.

30. Ibid.

capacities required for semiocapitalism, learning is simultaneously enfolded into the digitalization of the urban environment as a creative means of perpetual deferral of risk and future catastrophe. To illustrate these dynamics, I want to turn to an example that represents distinct features of this urban and educational futurist imaginary.

Projecting Urban Learning Futures

KnowledgeWorks is a self-described philanthropic and social enterprise, with ties to Silicon Valley and active partnerships in more than thirty U.S. states, that specializes in "strategic foresight" and "personalized learning." The strategic forecasting conducted by KnowledgeWorks is oriented to predicting, imagining, and realizing educational futures based on emergent trends in business, society, and technology. These foresight scenarios represent a model of educational futurism that formally recognizes that there are both "good" and "bad" versions of the future as well as applications of technology. However, at the same, they are symptomatic of broader efforts to reimagine urbanity, creativity, and learning through digital platforms that reflect a narrow set of assumptions and rationalities immanent to Silicon Valley and corporate technology cultures.[31]

KnowledgeWorks identifies multiple overlapping "disruptive innovations" that they predict will reshape education in the coming decades.[32] First, cities will become "sharable cities" operated by "ubiquitous urban informatics systems" and "abundant sensor data" to promote "creative solutions to large-scale problems." In turn, learning will become "unbundled" from the traditional "state-run system" and transition to an "urban service-layer" that will be digitally "networked across city spaces and institutions." KnowledgeWorks refers to this as the *learning ecosystem* — a distributed network of commercial education service providers linked by algorithms and totalizing data flows emerging from adaptive learning apps and personalized learning platforms that connect teachers (reimagined as data analysts and dashboard managers) to students (conceived simply as learners) across urban space and time. Second, there will be a proliferation of decentralized entrepreneurship and edu-tech start-ups powered by a "new open social and financial infrastructure," which will generate "transformational networks that match investment with collective economic and social impact." Any teacher, parent, student, or citizen can become an "edu-preneur" at any place or time, and therefore "disrupt" and add value to the urban learning ecosystem. Third, "as big data floods human sensemaking capacities, cognitive assistants and contextual feedback systems" will be developed by "disruptive edu-preneurs" that will shore

31. See Neil Selwyn, *Is Technology Good for Education?* (Malden, MA: Polity, 2016); Heather Roberts-Mahoney, Alexander J. Means, and Mark J. Garrison, "Netflixing Human Capital Development: Personalized Learning Technology and the Corporatization of K–12 Education," *Journal of Education Policy* 31, no. 4 (2016): 405–420; and Williamson, "Silicon Startup Schools," 4–5.

32. The quotes in this paragraph are all taken from the following document (in which there are no page numbers): KnowledgeWorks, "Recombinant Education: Regenerating the Learning Ecosystem" (2012), https://knowledgeworks.org/wp-content/uploads/2018/01/forecast-3-recombinant-education.pdf.

up "our minds with software assistants" and help us "structure learning and work environments to maximize focus, intrinsic motivation, and creativity." In short, we will become *learning cyborgs* with embedded "neural implants" and "cognitive enhancements" (including genetic editing) that will optimize brain function and enable radical improvement in human capability allowing "creativity," "participation," and "problem solving" to flourish across the urban learning ecosystem on an "unprecedented scale." Fourth, "our ability to automate more and more tasks will displace more human workers in favor of robots, giving rise to 'steel-collared workers'." Accelerating automation of production, logistics, and services will generate a profound shift in jobs and credentialing from a "workforce to a talent cloud" with corporations "relying on global networks of independent talent to match specialized skills with interaction-based tasks." Think here of an intensification of just-in-time "gig" labor provided by mobile platforms such as Amazon's Mechanical Turks, Uber, and TaskRabbit, which hold out the promise that we can all become our own urban microenterprises and CEOs. Fifth, KnowledgeWorks predicts that "customizable value webs," consisting of "innovative, open business models" and "customer-centric value propositions," will enable a radical "customization of learning" and a progressive recombination of "learning experiences, assets, and tools to help each learner find the specific value propositions that best meet his or her needs."

Platform Learning as Ontology of the Present

How do we make sense of these sociotechnical projections? KnowledgeWorks attempts to construct an archaeology of the future of urbanity and learning. However, as I argue below, this mode of futurism is one that is subsumed within an ontology of the present.[33] KnowledgeWorks rightly celebrates problem solving, openness, sharing, creativity, participation, and equity over closure, inequality, and instrumentalism. And it acknowledges that some of the transformations it anticipates may have negative consequences. However, it does so while ignoring underlying complexities that drive historical and technological change, particularly the deep structure of power and conflict immanent to political economy. Thus, I argue that it constructs a form of futurism without futurity, a mode of perpetual deferral where time itself is rendered an inevitable feedback loop of present systems and processes. For Fredric Jameson, cognitive mapping is the name of an "aesthetic" and "pedagogical" practice that attempts to locate such modes of spatial and temporal representation and imagination within a totality of sociopsychological relations immanent to late capitalism as a world-historical system. The purpose of cognitive mapping is thus to bridge the "gap between phenomenological perception" and "a reality that transcends all individual thinking or experience; but which ideology, as such, attempts to span or coordinate — to map — by means of conscious and unconscious representations."[34]

33. Fredric Jameson, *The Political Unconscious: Narrative as a Socially Symbolic Act* (New York: Routledge, 2013).

34. Ibid., 416.

In *Cartographies of the Absolute*, critical theorists Alberto Toscano and Jeff Finkle note that the history of cartography contains an "imperial genealogy," rooted in a drive inherent to Western modernity and colonialism to classify, measure, and configure the world as knowable and transparent, and to extend instrumental reason and administrative powers across the global space to track and divide nature and populations to serve projects of capital accumulation and social control.[35] These processes have long been the object of critical philosophy from Marx and Engels, to the Frankfurt School, to Michel Foucault, to feminist and decolonial thinkers.[36] However, despite the imperial baggage of cartography, Toscano and Finkle argue that Jameson's cognitive mapping provides an invaluable tool for thinking the present, "precisely because it does not provide a method, or advance a concept; rather, it poses a *problem* which is at once political, economic, aesthetic, and existential."[37] This "problem" is visualizing and grasping late capitalism as a world-making machine within a vast historical totality marked by systems of integration and differentiation, contradictions and absent causes.

What does it mean to suggest the projections of urban education offered by organizations like KnowledgeWorks are subsumed within an ontology of the present, when these projections are oriented to predicting, even materializing learning futures? I suggest that KnowledgeWorks is symptomatic of broader discursive tendencies within an emergent platform urbanism and educational futurism. Thus, rather than undertaking a forensic deconstruction of KnowledgeWorks, I want to "transcode" (to borrow another concept from Jameson) the valences of sociohistorical thought immanent to this urban and educational futurism through three frames — solutionism, collaborationism, and techno-realism — that each signal a prevailing sense that technological change exists as an inevitable, isolated, and objective variable. As philosophers from Plato, to Marx, to Heidegger, to Donna Haraway have observed, technology is a historically and culturally determined product of human activity.[38] As Haraway keenly states, "technology is not neutral. We're inside of what we make, and it's inside of us. We're living in a world of connections — and it matters which ones get made and unmade."[39] In a parallel

35. Alberto Toscano and Jeff Finkle, *Cartographies of the Absolute* (New York: Verso, 2016).

36. Karl Marx and Fredrick Engels, *The Communist Manifesto* (New York: International Publishers, 2014); Max Horkheimer, Theodor W. Adorno, and Gunzelin Noeri, *Dialectic of Enlightenment* (Stanford, CA: Stanford University Press, 2002); Michel Foucault, *Society Must Be Defended: Lectures at the Collège de France, 1975–1976* (New York: Palgrave, 2003); Sandra G. Harding, *The Science Question in Feminism* (Ithaca, NY: Cornell University Press, 1986); and Chandra Talpade Mohanty, *Feminism without Borders: Decolonizing Theory, Practicing Solidarity* (Durham, NC: Duke University Press, 2003).

37. Toscano and Finkle, *Cartographies of the Absolute*, 22.

38. John M. Cooper and D. S. Hutchinson, *Plato: Complete Works* (Indianapolis, IN: Hackett, 1997); Martin Heidegger, *The Question Concerning Technology, and Other Essays* (New York: Harper & Row, 1977); and Donna Haraway, *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, 2013).

39. Hari Kunzru, "You Are a Cyborg," *Wired* 5, no. 2 (February 1997).

mode, sociologist Ulrich Beck positions technology as a core feature of "reflexive modernization," where present attempts to contain future existential risks that emerge from our sociotechnical systems generate new problems and threats to be managed ad infinitum.[40] For example, geoengineering projects such as blasting sulfur into the atmosphere to cool the earth's temperature are imagined as a rational means of combating climate change. The risks of such interventions into the earth's climate vastly exceed global carbon pricing and the socialized redistribution of proceeds back into a global renewable energy transition. However, geoengineering seems strangely easier to imagine than minor alterations to global capitalism and its externalization of the social and environmental costs to endless growth. The three frames of solutionism, collaborationism, and techno-realism reflect forms of ideological reasoning inherent to an educational futurism as it positions digitalization as a force of change outside complexities of power and history.

Solutionism: Creativity as Optimization and Learning as Resolution

The new educational futurism syncs with reflexive modernization. By transforming the *structure* of urban education through technology, learning becomes a tool for resolving the risks emerging from the negative externalities of our sociotechnical systems. In more familiar language, urbanity and learning are conceived as a networked and customizable project aligned with creativity as a resource for solving twenty-first century problems. We can call this vector of platform urbanism and new educational futurism *solutionism*. The contrarian technology writer Evgeny Morozov defines solutionism as a form of "Internet centrism," or "algorithmic regulation" reflective of Silicon Valley and corporate technology cultures that attempt to recast "all complex social situations either as neatly defined problems with definite, computable solutions or as transparent and self-evident processes that can be easily optimized — if only the right algorithms are in place."[41]

Learning and creativity are central to solutionism. For instance, the Silicon Valley software giant Cisco advocates new approaches to learning so as to unleash "the power of technology to launch a generation of global problem solvers who innovate like technologists, think like entrepreneurs, and act as social change agents." For Cisco, learning is a means of stimulating economic productivity and innovation through human capitalization, which is viewed as the key "to help solve some of the world's most challenging problems — water scarcity, hunger, income inequality, environmental degradation, poverty, migration, and unemployment."[42] The allure of solutionism as an *educational and technological* assemblage is that it promises *absolution and resolution* to complex sociohistorical

40. Beck, *World at Risk*.

41. Evgeny Morozov, *To Save Everything, Click Here: The Folly of Technological Solutionism* (Philadelphia: Public Affairs Books, 2013), 5.

42. Tae Yoo, "Launching a Generation of Global Problem Solvers," white paper (San José, CA: Cisco, 2015).

phenomena, like automation of labor and anthropogenic climate change, through utopian appeals to market efficiency and technical mastery beyond politics and ideology. The challenge posed by solutionism is that when society is reduced to economic and technical calculation, our collective ability to define how complex global problems are posed, understood, debated, and addressed is attenuated. For example, urban and educational problems such as racial segregation and class inequality simply become "learning problems," "design problems," or "computational problems," *surface effects* to be predicted and managed by feedback loops, algorithms, mobile apps, and data platforms as opposed to symptoms of *deep causal processes* immanent to the sociotechnical systems and ideological expressions of late capitalism that require ethical reflection and collective action. By promising technical solutions through the optimization and smartification of urban life, including the digitalization of urban education and human creativity, our capacity to map, assess, experiment with, imagine, and enact urban futures becomes narrowed and fragmented, and therein, disassociated from a deeper sociohistorical apprehension of urban space, experience, and temporality.

Collaborationism: Creativity as Participation and Learning as Transcendence

Within the register of solutionism, learning is conceived as a means of generating creative capacities and technological solutions to twenty-first century problems through the optimization of cities and the "smartification" of education, teaching, and learning. *Collaborationism* is a parallel, albeit more ambitious register of ideological reasoning. Within the rationality of collaborationism, optimization is imagined not only as problem solving but also as a means of smoothly transcending the limitations of the present through networked participation. Platform urbanism imagines cities will become "sharable," while learning is "customized," through ubiquitous information flows and a proliferation of "creativity" and "value webs" emerging in "participatory economies" and "conscious investment." This will supposedly enable the transcendence of vertically integrated institutional arrangements, such as brick-and-mortar urban schools and universities, replacing them with open and horizontal participatory digital networks.

For example, Jeremy Rifkin, who is a business consultant and prominent writer on the information economy, argues that we are witnessing the emergence of "social entrepreneurship" and "sharing value" based on a digitally networked "collaborative commons."[43] Following theorists of the information and network society such as Daniel Bell, Peter Drucker, and Yokai Benkler, Rifkin argues knowledge does not obey traditional laws of scarcity, and its abundance and the near zero cost of digital reproduction are eroding profit models based on proprietary control of information and intellectual property. He claims this will lead to a new set of participatory institutional and economic relations made possible by total information integration, peer-to-peer exchange, 3D printing, just-in-time microproduction,

43. Rifkin, *The Zero Marginal Cost Society*.

cryptocurrencies such as Bitcoin, crowdsourcing platforms, open software, and creative commons licensing revolutions. Rifkin predicts that through participation in "sharable cities" and "social entrepreneurship" made possible by the new digital infrastructure, there will be a transcendence of capitalism and the antiquated bureaucratic state. "The capitalist era is passing," he argues, and "a new economic paradigm — The Collaborative Commons — is rising in its wake."[44] He writes:

> While the capitalist market is based on self-interest and driven by material gain, the social commons is motivated by collaborative interests and a deep desire to connect with others and share. … The IoT [Internet of Things] is the "soul mate" of the emerging Collaborative Commons. The new infrastructure is configured to be distributed in nature in order to facilitate collaboration and the search for synergies, making it the ideal technological framework for advancing the social economy. … The IoT enables billions of people to engage in peer-to-peer social networks and cocreate the many new economic opportunities and practices that constitute life on the emerging Collaborative Commons. The platform turns everyone into a prosumer and everything into a collaboration. The IoT potentially connects every human being in a global community, allowing social capital to flourish on an unprecedented scale, making a sharing economy possible.[45]

Solutionism promises resolution of the risks emerging from reflexive modernization and the sociotechnical systems immanent to late capitalism. In contrast, collaborationism promises transcendence of the limitations imposed by these systems, not only through the *optimization* of cities, creativity, and learning, but also through *participation* and *collaboration* in network exchange. However, while digital platforms may indeed enable creative, even revolutionary possibilities for social cooperation that point toward alternative geographies and paradigms of problem solving and exchange, this certainly does not mean an inevitable, progressive, or transcendent trajectory. In contrast, rather than creating a friction-free urbanity and "sharing economy" based on the altruism of Silicon Valley and the triumph of social value over exchange value, as Rifkin and others anticipate, new digital technologies, including adaptive learning technologies, are squarely integrated into the imperatives of late capitalism, such as the drive of Silicon Valley enterprises like Amazon, Google, and Facebook to generate monopolies, extract profits, and inflate stock values. Likewise, as those like Steven Hill have documented, commercial "sharing" labor platforms like TaskRabbit and Freelancer — rather than simply "liberating" and "empowering" workers within a framework of "participation" and "collaboration" — are reshaping the terms of labor exploitation by repressing wages and further eroding security and benefits for workers.[46] Moreover, data platforms are neither inherently neutral, nor objective. Big data is a "biopolitical technology."[47] As the former Wall Street risk manager and mathematician Cathy O'Neil documents, while data analytics can potentially

44. Ibid., 1.

45. Ibid., 17.

46. Steven Hill, *Raw Deal: How the "Uber Economy" and Runaway Capitalism Are Screwing American Workers* (New York: St. Martin's Press, 2015).

47. Foucault, *Society Must Be Defended*.

be trained for progressive ends, they often function to sort, rank, and profile populations, separating winners and losers, through elaborate systems of surveillance, data collection, and asymmetries of information.[48] For example, if there are high rates of crime in poor, racially isolated urban neighborhoods, then predictive crime fighting algorithms direct police to those neighborhoods, where black and brown youth (who use and distribute illegal drugs at rates often lower than their white counterparts) are then subjected to profiling, thus reproducing the racial logic of mass incarceration. In terms of urban education, the "learning ecosystem" and "personalized learning," as conceived by organizations like KnowledgeWorks, imagine urbanity as a distributed commercial platform, creativity as a means of serving markets, teaching as a deliverable technology service, and learning as a consumable product provided by edu-tech enterprises and adaptive software. In the language of Jan Masschelein and Maarten Simons, education is conceived as a "learning apparatus" to be predicted and made efficient, narrowly rendering capacities like creativity as "skills" to serve economic ends, rather than fostering participatory transcendence of existing systems of production, exchange, and accumulation.[49]

Techno-Realism: Creativity as Adaptation and Learning as Resilience

Techno-realism is a third embedded rationality that is perhaps more directly reflective of the political unconscious of platform urbanism and new educational futurism. If solutionism imagines urban creativity as digital optimization and learning as resolution of global problems, and collaborationism is urban creativity as network participation and learning as transcendence, techno-realism is *urban creativity as adaptation and learning as resilience*. In contrast to collaborationism, techno-realism views platform urbanism as part of a natural and immutable dilation of late capitalism and technological evolution. To illustrate, the economist Tyler Cowen provides what is perhaps the most succinct and widely discussed instantiation of techno-realism.[50] For Cowen, emerging technological innovations such as artificial intelligence and integrated digital systems will radically expand urban and regional inequality in the coming decades, producing a deepening bifurcation between a top stratum of elite urban professionals (he estimates 10 to 15 percent of the population) and a sprawling bottom stratum (85 percent) consisting of a precarious service layer hustling from one temporary gig to another,

48. Cathy O'Neil, *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy* (Lake Arbor, MD: Crown Books, 2016).

49. Simons and Masschelein, "The Governmentalization of Learning and the Assemblage of a Learning Apparatus." See also Lewis, *On Study*.

50. Tyler Cowen, *Average Is Over: Powering America Beyond the Age of the Great Stagnation* (New York: Dutton, 2013). Cowen's description of the future is dystopian, but given current trends, it is also alarmingly realistic. Despite the fact that he holds a faculty position in George Mason University's right-wing libertarian economics department (funded by the Koch network), Cowen's vision of the future of capitalism and technology is not so dissimilar from that of many critical theorists and social scientists. What is shocking is his total lack of empathy for those who will inhabit this future, nor does he seem to think that things can or should be done to achieve a more humane vision of the future.

and/or existing as permanently unemployed. According to Cowen, one's fate will be determined by individual resilience and strategic investments in learning that translate into the creativity and know-how to "complement" and "add value" to smart machines. Those that adapt by investing in technical education and skills relevant to owning, inventing, and operating the automated and informatic landscape of platform urbanism will live a life of abundance and luxury, while the rest compete to either provide personal services for the high earners, or are thrown into a state of perpetual insecurity and redundancy. "It depends," Cowen states, "on how many people find work either as personal servants or as more distant service providers to the high earners, and what wages they will be able to negotiate."[51]

Techno-realists like Cowen argue this future will simply reflect an efficient sorting of populations into the deserving and undeserving, masters and serfs, based on the natural and inevitable evolution of techno-capitalism combined with individual resilience to adapt and learn. For Cowen, a dyed-in-the-wool Hayekian, this is exactly the way the future of cities should develop and he sees little reason to be troubled. In many respects, there are cities across the world that already reflect Cowen's techno-realist future. As urban scholars like Mike Davis have incisively detailed, our urban planet increasingly resembles a "planet of slums," marked by a vast "surplus humanity," largely walled-off in semi-apartheid conditions, cloistered from the primary beneficiaries of global capitalism.[52] Similarly, Stephen Graham has argued that this intersects with a "new military urbanism," whereby the inequalities and contradictions of our sociotechnical systems are becoming increasingly managed by "control platforms" of expansive urban securitization and surveillance infrastructures.[53]

Experimental Platforms and Mass Intellectuality

Fredric Jameson argues that one of the defining cultural features of late capitalism is a diminished capacity to imagine the new. He suggests we can see this tendency in urban design and architecture such as the Eaton Center in Toronto or the Bonaventure Hotel in Los Angeles that rely heavily on a syntax of pastiche and recycled aesthetic forms detached from their original historical meaning and locations. Mark Fisher has similarly described this as "capitalist realism," or the idea that our prevailing cultural logics are trapped in creative inertia.[54] An interesting aspect of the ideological valences of platform urbanism and the educational futurism outlined above is that these sociotechnical rationalities appear to both affirm and challenge such notions of imaginative enclosure.

51. Ibid., 179.

52. Mike Davis, *Planet of Slums* (New York: Verso, 2006).

53. Stephen Graham, *Cities under Siege: The New Military Urbanism* (New York: Verso, 2011).

54. Mark Fisher, *Capitalist Realism: Is There No Alternative?* (London: Zero Books, 2009).

At this moment, from Silicon Valley public relations and TED conferences, to films, novels, and television series, the cultural valences of late capitalism are in fact rife with utopian and dystopian scenarios and alternative futures. However, despite differences in inflection, the rationalities of solutionism, collaborationism, and techno-realism each share a common ideological orientation reflecting a paradox in such popular representations of the future. Namely, within the realm of technology anything is thought possible, while at the level of political economy nothing is. Even Rifkin, who sees an inevitable displacement of capitalism by collaboration and participatory economies, views this transition as simply a *side effect* of technological innovation, rather than *an uncertain sociohistorical potential* (among others) that is circumscribed by power and antagonisms immanent to capitalism, states, and civil societies. Within such boundaries, serious debates over our patterns of production, exchange, ownership, labor, consumption, and endless growth are largely made invisible. Simultaneously, we are inundated with fantastical narratives of technological change, whether of the solutionist, collaborationist, or techno-realist varieties, alongside their projections of creativity and learning as resolution, transcendence, and resilience. In terms of the *creative urban imagination*, there is a reduction here in the *projection of urban possibility* to visions of radical change at the level of technology, but creative stasis at the level of urban sociality and politics, as late capitalism is rendered untimely, standing outside history and ethics.

Educational and social theorists need to generate new forms of critical analysis and evaluation of these conceptualizations of urbanity and learning as well as engaging with and offering counter perspectives that take a more creative and expansive sociohistorical view. For instance, the journalist Paul Mason has suggested the urban future will be determined by overtly *antagonistic* forms of creativity and learning made possible by abundant knowledge and digital network technologies. Rather than a smooth resolution of problems, or technological transcendence of capitalism, Mason views technology as enabling the production of educated countersubjectivities capable of reconstructing a post-scarcity political economy that directs learning and technology toward democratic egalitarianism. "By creating millions of networked people," he writes, "financially exploited but with the whole of human intelligence one thumb-swipe away, info-capitalism has created a new agent of change in history, the educated and connected human being."[55] Other thinkers such as Michael Hardt and Antonio Negri provide an image of creativity and learning as a kind of *radical surplus* emanating from what they refer to as the "biopolitical metropolis," the city itself as a type of social technology, or social machine of production and coordination of the common.[56] Rather than offer ready-made solutions, the "biopolitical metropolis" offers a vision of creativity and learning as "out of bounds," to borrow a phrase from

55. Paul Mason, *Postcapitalism: A Guide to Our Future* (New York: Penguin, 2015), 27.

56. Michael Hardt and Antonio Negri, *Commonwealth* (Cambridge, MA: Harvard University Press, 2009).

Tyson Lewis and Richard Kahn, of the "imperial imaginary" of late capitalism and its enclosure of sociality, life, learning, and collective labor.[57] In a different register, Nick Srnicek and Alex Williams imagine a model of an *accelerative city*, whereby creativity and learning become oriented to achieving "collective self-mastery" and "sociotechnical hegemony" for a radical-progressive postcapitalist project based on technology, equality, and sustainability. As opposed to the dystopian spirit of techno-realism that views technological development as outside human agency and control, Srnicek and Williams argue that the technological platforms of late capitalism contain emancipatory potential. They write in utopian terms:

> Through popular political control of new technologies, we would collectively transform our world for the better. Today, on one level, these dreams appear closer than ever. The technological infrastructure of the twenty-first century is producing the resources by which a very different political and economic system could be achieved. Machines are accomplishing tasks that were unimaginable a decade ago. The internet and social media are giving a voice to billions who previously went unheard, bringing global participative democracy closer than ever to existence. Open-source designs, copyleft creativity, and 3D printing all portend a world where the scarcity of many products might be overcome. New forms of computer simulation could rejuvenate economic planning and give us the ability to direct economies rationally in unprecedented ways. The newest wave of automation is creating the possibility for huge swathes of boring and demeaning work to be permanently eliminated. Clean energy technologies make possible virtually limitless and environmentally sustainable forms of power production. And new medical technologies not only enable a longer, healthier life, but also make possible new experiments with gender and sexual identity. Many of the classic demands of the left — for less work, for an end to scarcity, for economic democracy, for the production of socially useful goods, and for the liberation of humanity — are materially more achievable than at any other point in history.[58]

Whether we imagine creativity and learning as antagonism, as radical surplus, or as a vehicle of sociotechnical emancipation, there is little doubt that the urban future we are plunging into requires fresh thinking about human capabilities, technology, and creative solutions. However, what I believe is required is a radically different conception of urban education than what is offered in popular representations emanating from Silicon Valley that imagine cities and learning as computational projects beyond history and social agency. Media scholar Shannon Mattern here points us in the right direction:

> We need to expand our *repertoire* … of urban intelligences, to draw upon the wisdom of information scientists and theorists, archivists, librarians, intellectual historians, cognitive scientists, philosophers, and others who think about the management of information and the production of knowledge. They can help us better understand the breadth of intelligences that are integrated within our cities, which would be greatly impoverished if they were to be rebuilt, or built anew, with computational logic as their prevailing epistemology.[59]

57. Tyson E. Lewis and Richard Kahn, *Education Out of Bounds: Reimagining Cultural Studies for a Posthuman Age* (New York: Palgrave, 2010).

58. Nick Srnicek and Alex Williams, *Inventing the Future: Postcapitalism and a World without Work* (New York: Verso, 2016), 1.

59. Shannon Mattern, "A City Is Not a Computer," *Places Journal* (February 2017), https://doi.org/10.22269/170207.

What Mattern offers here is an image of the city conceived not as a digital platform to be optimized and computed, but a site of conscious experimentation and applied mass intellectuality.[60] The most serious problem we face today may not be grotesque inequality, or even ecological breakdown, but a collective inability to locate and cognitively map such phenomena within a sociohistorical totality constitutive of the imperial (that is, spatial, technical, racial, linguistic, cultural, affective, ecological, gendered, and temporal) logics of late capitalism. The techno-euphoric push to transform cities, human creativity, and learning in the name of efficiency and optimization reflects this general attenuation of collective intelligence. A current turn toward conspiracy theories, ethno-nationalism, and right-wing authoritarianism are also symptoms. A general path forward is to imagine sociotechnical visions of mass intellectuality capable of connecting learning and technology to egalitarian and sustainable nature–society relations. I want to end here with several postulates that point toward such a vision of mass intellectuality as a set of creative capacities foundational to an alternative urban educational futurism.

- *Systems Integration* — the capacity of urban educational institutions, teachers, students, and communities to integrate fields of knowledge and directly link knowledge formation across economics, science, design, engineering, ecology, and technology to historical, philosophical, ethical, and political considerations
- *Pattern Recognition* — the capacity embedded in curriculum and pedagogy to synthesize, interrogate, and rework continuities, discontinuities, inconsistencies, and contradictions in complex urban flows of information, data, code, polemics, text, images, and affects across the domains of science, media, humanities, arts and aesthetics, comparative politics, and social science
- *Cognitive Mapping* — the capacity to map interrelationships within and across various aspects of natural, urban, rural, and social geographies and realities and connect them to the historical modulations of capitalism, technology, space/time, and so on
- *Problem Posing* — the capacity to assess history, experience, meaning, ideas, values, and practices through critical engagement with social, ethical, political, and ecological problems so as to reconstruct freedom and egalitarian relations
- *Future Modeling* — the capacity to creatively model utopian imaginaries that project radically different futures for education and society beyond late capitalism and its reduction of history and culture to endless accumulation

60. Mass intellectuality is a term derived from thinkers associated with autonomist Marxism and refers to the totality of immanent social and technical capacities and potentialities. See Nick Dyer-Witheford, *Cyber-Marx: Cycles and Circuits of Struggle in High-Technology Capitalism* (Urbana: University of Illinois Press, 1999).

We might imagine such capacities as a foundation for generating experimental platforms for urban futures rooted in learning cultures oriented to the production of an emancipatory mass intellectuality. Such a mode of urban educational futurism would recognize the inherent contingency and potentiality of sociohistorical change and seek to create forms of education and collective learning that reflect the values of critical scientific and philosophical reflection, equality and freedom rather than economic prescription and fantasies of technological mastery, absolution, and transcendence. Mass intellectuality reflects education and learning as a creative and collective process and a social relation rather than as a machine to be optimized and calculated. It conceives of students as creative beings, rather than as objects within a predictive input and output schema of technical calculation for an endless commodification of self, world, and time.