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Author

Sims, Christo

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Chapter 24:

Learning, Technology, and the Instrumentalization of Critique

Handbook of the Anthropology of Technology

Corresponding author: Christo Sims, University of California, San Diego

chsims@ucsd.edu

This chapter explores how anthropological critiques of dominant theories of learning and technology have a tendency to be absorbed and instrumentalized by the hegemonic projects they target. The chapter investigates these themes by tracing how anthropological critiques of mainstream cognitive theory and artificial intelligence research during the 1980s and early 1990s were adapted and deployed in the early 2000s as part of a philanthropic initiative that aimed to reinvent educational institutions for the digital age. In particular, the chapter traces how Lave and Wenger's (1991) notions of 'situated learning' and 'communities of practices' were adapted for a digitally networked era through the formulation of concepts such as 'networked publics' (Ito et al., 2009), 'affinity groups' (Gee, 2003), and 'connected learning' (Ito et al., 2013). The chapter then turns to an ethnographic case study of an ambitious attempt to design a new model of schooling that was informed by and organized around these more technocratic adaptations of the earlier anthropological critiques. By focusing on how different student peer cultures at the school responded to reformers' new model of schooling, the chapter illustrates how reformers adapted and deployed anthropological critiques in ways that ended up remaking, albeit unintentionally, many instrumentalist practices and entrenched social inequities, notably of gender and racialized social class. The chapter argues that this absorption and instrumentalization of anthropological critique occurred in large part through a gradual process of perspectival inversion: a steady move away from the concerns, understandings, and practices of learners and towards those of reformers, philanthropists, technology designers, educators, parents, and other adults who were charged with caring for and educating the young. At the same time, ritualized performances of the school's affinity for the earlier anthropological critiques and, more generally, counter-hegemonic struggles – a phenomenon that I refer to as *sanctioned counterpractices* – occluded

not only the process of perspectival inversion but also many of the ways in which the school was contributing to the remaking of structural inequities.

Anthropological Critiques of Mainstream Cognitive Theory

In the second half of the twentieth century, cognitive psychology played an especially privileged role in shaping how many policymakers, experts, and members of the public understood relations between knowledge, learning, and computing technologies. At the risk of oversimplifying, mainstream cognitive theorizing during the 1970s and 1980s tended to portray persons as minds, knowledge and culture as symbolic information, learning as internalization of that information, and cognition as a process in which individual (professional) minds manipulate symbols in order to solve problems and direct (rational) behaviour (Lave, 1988, pp. 76–93). Successful learning, from this perspective, referred to a situation in which learners could accurately reproduce the validated forms of knowledge and information they had internalized. The learner was passive, and pedagogy was rote and instrumental.

Not coincidentally, similarly assumptions underlay dominant understandings of computing technologies. Cognitivist theories of learning gained stature and influence alongside the rapid expansion of both the personal computing industry and artificial intelligence research during the 1970s and 1980s. Mainstream cognitive theory and AI research both relied on functionalist assumptions that allowed not only human minds and computers to be mapped onto each other, but also for computers to be imagined as an unproblematic extension of or replacement for human cognition. The theory of mind that was being developed in mainstream cognitive science and amongst artificial intelligence researchers during the 1970s and 1980s had strong parallels with the architecture of the computer, and, as some critics noted at the time, the

features of the latter appeared to be shaping their theorizing about the former (Dreyfus, 1972; Dreyfus & Dreyfus, 1986; Searle, 1980; Suchman, 1987). Just as programmers inscribed electronic bits into a computer's memory, so did societies or cultures inscribe information and knowledge into the minds of learners. And just as computers instrumentally ran algorithms on those bits of information in order to solve problems effectively and efficiently, so did human minds instrumentally process information in order to make plans, solve problems, and act rationally. Many of these assumptions and aspirations remain influential today.

It was against this backdrop that several anthropologists developed influential critiques of mainstream cognitive theorizing and artificial intelligence research as they proposed alternative theories of knowledge, learning, and cognition. Working in parallel and sometimes in dialog with scholars in Science and Technology Studies (e.g. Latour & Woolgar, 1979; Knorr-Cetina & Mulkay, 1983; Haraway, 1988; Traweek, 1988), anthropologists such as Jean Lave (1988), Lucy Suchman (1987), and Edwin Hutchins (1995) developed ethnographically-informed critiques of the central premises of mainstream cognitive theory, more generally, and its instrumental application in fields such as education, artificial intelligence, technology design, and scientific management.

While each scholar drew on different problematics – Lave on historical-materialist practice theories, Suchman on ethnomethodology, and Hutchins on Vygotsky-inspired activity theories – all argued for inverting conventional studies of cognition, which tended to prioritize the perspectives of experts, institutionally sanctioned forms of knowledge, and idealized notions of rational decision making.¹ They did so by conducting ethnographic studies how people engaged in cognition and used technologies as part of their everyday situated activities. In doing so, they argued that cognition, knowledge, and learning were not features of individual minds

but, rather, distributed accomplishments of ongoing social activities that took place in concrete environments. Importantly, by drawing attention to the *situated* character of knowledge, cognition, and learning, each anthropologist also drew attention to how seemingly mental phenomena were actually co-constituted with pragmatic engagement with technologies, tools, equipment, and artifacts and often in ways that exceeded or escaped the purposes and uses that designers had ascribed to them. While Suchman, Lave, and Hutchins formulated key terms such as ‘situated’ and ‘context’ differently, each critiqued the abstract, mentalist, and decontextualized notions of information, knowledge, and skill that characterized mainstream cognitive theory and artificial intelligence research.² Each also challenged and aimed to supersede the entrenched dualisms they found in mainstream cognitive theorizing, including those between subjects and objects, persons and worlds, minds and bodies, and humans and non-humans, the latter of which included artifacts, tools, and technologies.³

The influence of these anthropological critiques has been considerable and, in many ways, commendable. Suchman’s and Hutchins’s critiques are now canonical not just in cognitive science but also in fields that specialize in designing the human and social aspects of computer systems. Likewise, Lave’s critiques have become canonical in fields as diverse as education, cognitive science, technology design, the learning sciences, and organizational studies.⁴

While the reach of these anthropological theories is laudable, the authors themselves acknowledge that many of the politically incisive aspects of their critiques have been stripped away as their works spread. In some cases, the critiques have even been deployed in the service of the sorts of hegemonic projects that the anthropologists were challenging (cf. Vann & Bowker, 2001; Duguid, 2008; Lave, 2008). As Lave (2019) acknowledged in a recent reflection

on the uptake of her influential 1991 book *Situated Learning: Legitimate Peripheral Participation*, which she co-authored with the computer scientist Étienne Wenger:

[T]he book is often cited as the source of two concepts, ‘situated learning as legitimate peripheral participation’ and ‘communities of practice.’ But when excised as simply things in themselves, as if they are not constituted as part of more comprehensive theoretical relations, concepts like ‘situated learning’ easily travel as mere slogans, plugged into common sense, uncritical theoretical and analytical contexts (pp. 134-135).

The remainder of this chapter sketches how the institutional locations from which these anthropological critiques were generated, adapted, and deployed appear to have contributed to their widespread circulation while also making them susceptible to adaptation, absorption, and instrumentalization by dominant institutions and actors, a process that I am referring to in this chapter as perspectival inversion. The chapter first examines the unique institutional loci from which these critiques were generated, before focusing on influential attempts to update and apply Lave and Wenger’s (1991) theory of situated learning to the digital age (cf. Gee, 2003; Ito et al., 2009). In doing so, I trace a shift away from the concerns, understandings, and practices of the persons that anthropologists studied and towards those of persons charged with designing and managing sites central to the construction and exercise of hegemonic power.

Institutional Loci of Anthropological Critique

The widespread propagation, adaptation, and, at times, absorption and instrumentalization of anthropological critiques of cognitive theory from the 1980s and 1990s can partly be attributed to the fairly distinct institutional loci in which these critiques were produced. Each of the anthropological texts that I have been focusing on were produced in what at the time were fairly unconventional locations for conducting anthropological research. Hutchins's theories of distributed cognition were produced at the University of California, San Diego, which hosted the founding meeting of the Cognitive Science Society in 1979 and is home to the first cognitive science department in the world. While trained as an anthropologist, Hutchins shared an appointment in the Cognitive Science Department at UCSD, and this institutional location contributed not only to the formulation of his theories but also to their spread in cognitive science and adjacent fields such as Human-Computer Interaction (CHI) and Computer Supported Collaborative Work (CSCW).

Similarly, both Suchman's *Plans and Situated Actions* and Lave and Wenger's *Situated Learning* were produced in multidisciplinary settings that, on the one hand, afforded them opportunities to produce research and theory that crossed disciplinary silos but also, and on the other hand, were connected to and financially dependent on large technology corporations and actors with hegemonic agendas. *Plans and Situated Actions* is based on a study of computer scientists who worked at Xerox's famed Palo Alto Research Center (PARC), and Suchman worked as a researcher at PARC during and after publishing *Plans and Situated Actions*. Similarly, Lave and Wenger wrote *Situated Learning* while working at the Institute for Research on Learning (IRL), a multidisciplinary think tank and PARC spinoff. Both PARC and IRL were located in Silicon Valley, and both rejected established disciplinary orthodoxies. But both PARC and IRL were also deeply connected to the cultures and interests of the technology industry, and

these connections likely aided to what Lave acknowledges was an under-theorization of the political-economic and institutional relations in the original formulations of situated learning theory (Lave, 2019, p. 134).⁵ A similar critique could be made of Suchman's ethnomethodological analysis in *Plans and Situated Actions* and of Hutchins's theories of distributed cognition. While the uniqueness of the institutional settings in which these works were produced facilitated the development of highly original critiques of dominant lines of cognitive theorizing, it also made the critiques especially susceptible to absorption and instrumentalization by more dominant actors and groups, such as technology corporations, management consultants, and philanthropic educational reformers.

To demonstrate this last claim, the remainder of the chapter focuses on one example of anthropological critique becoming absorbed and instrumentalized by dominant actors and agendas. It examines how the institutional location from which *Situated Learning* was produced, IRL, appears to have shaped the dissemination and at times instrumentalization of Lave and Wenger's ideas through a process of perspectival inversion. In particular, the chapter traces the influence of IRL on one especially influential adaptation, absorption, and ultimately instrumentalization of situated learning theory during the 2000s: The John D. and Catherine T. MacArthur Foundation's attempt to create a new field of expertise centered on Digital Media and Learning (DML). To illustrate the argument, I reflect on my own participation in the DML initiative and draw on my ethnographic study of a new school that attempted to implement concepts and principles that were being developed by beneficiaries of the DML initiative.

From Situated Learning to Digital Media and Learning

IRL was cofounded in the mid-1980s by John Seely Brown, a well-connected and influential computer scientist and organizational scholar. Brown worked at PARC at the time, eventually became the chief scientist at Xerox, and helped launch IRL as a spinoff of PARC. From its beginning, IRL aimed to challenge the dominant lines of cognitive theorizing that were sketched earlier in this chapter. It did so by bringing together a highly interdisciplinary collective of scholars – including anthropologists, developmental psychologists, computer scientists, management theorists, and linguists – in order to develop theories of cognition and learning that took both tools, potentially including computing technologies, and social contexts as constitutive features. In part due to its location in Silicon Valley and connections to the technology industry, theoretical concepts developed at IRL, such as ‘communities of practice’ and ‘situated learning’, quickly became influential not only in fields such as anthropology and education but also in management consulting, organizational studies, computer science, technology design, and engineering (cf. Brown, Collins, & Duguid, 1989; Brown & Duguid, 1991).⁶

In addition to providing institutional support for the creation of original and transdisciplinary critiques of mainstream cognitive theorizing, IRL played a prominent role in forging a distribution network and discourse community around the works its members produced. For example, Brown and other members of IRL helped to found the *Learning in Doing* book series at Cambridge University Press, which published Suchman’s *Plans and Situated Actions*, Lave and Wenger’s *Situated Learning*, Wenger’s *Communities of Practice*, and many other influential works that challenged dominant theories of the relations between learning, sociality, technology, and media. IRL was also instrumental in the formation of a new disciplinary field, the Learning Sciences, which adopted *Situated Learning* and other works produced at IRL as canonical texts.

My own forays into the legacy of IRL began not long after I started graduate school in the mid 2000s when I got involved in a collaborative research project that one of my professors was codirecting. Known as The Digital Youth Project, the initiative consisted of a team of over 20 scholars who ethnographically studied how young people in the United States were incorporating digital media into their everyday lives. The Digital Youth Project was at the vanguard of one of the MacArthur Foundation's major new philanthropic priorities, which aimed to explore the unprecedented opportunities for learning that networked digital media appeared to be making possible. The Foundation had grown disillusioned with its previous educational grant making, which focused on school reform in the city of Chicago, and John Seely Brown, who was now on the MacArthur Foundation's Board of Directors, championed and guided the new Digital Media and Learning initiative for the Foundation. The MacArthur Foundation supported The Digital Youth Project with a US\$3 million grant and went on to spend over US\$240 million on the broader initiative over the next fourteen years.⁷ In the process, they created a new field of expertise, known as Digital Media and Learning (DML).

While I did not realize it when I first got involved, the DML initiative was in many ways a direct descendent of the IRL's work from the late 1980s and 1990s. Not only did John Seely Brown champion and guide both initiatives, but several scholars who had been involved with IRL during the 1990s became central players in the new DML initiative.⁸ This legacy also shaped the perspectives and goals of The Digital Youth Project as one of our stated aims was to update Lave and Wenger's theory of situated learning for an era in which networked computing and enhanced media engagement were becoming pervasive (Ito et al., 2009, pp. 13-14).

These legacies also had a direct impact on the book we produced at the end of the Digital Youth Project – titled *Hanging Out, Messing Around, and Geeking Out* or HOMAGO, for short

(Ito et al., 2009) – which became foundational in the new field of Digital Media and Learning. For example, instead of Lave and Wenger’s notion of ‘communities of practice,’ which rested on an idea of co-participation in collocated activities, we developed the notion of ‘networked publics’ (Ito, 2008; Ito et al., 2009, pp. 18-21), which was meant to geographically extend the loci of communities of practice towards digitally-enabled forms of distributed sociality.⁹ Like our intellectual ancestors at IRL, our formulation of networked publics was influenced by developments and discourses that were currently fashionable in the technology industry and amongst scholars of digital media technologies. For example, in making a move away from artifact-mediated activity in local contexts and towards computer-facilitated forms of networked sociability, our ideas were shaped by influential work in media studies, such as Henry Jenkins theory of ‘participatory cultures’ (Jenkins, 1992; Jenkins et al., 2006), as well as more popular accounts of internet culture, such as the notion of the ‘long tail,’ which had been developed and propagated by Chris Anderson (2004), then the editor-in-chief of *Wired* magazine. Similarly, we adapted Lave and Wenger (1991) notion of learning as a process of ‘legitimate peripheral participation’ and gave it a more tech-focused figuration with our notion of ‘genres of participation’ and a taxonomy of three such genres by which young people appeared to be learning through engagements with media and technology: ‘hanging out,’ ‘messing around,’ and ‘geeking out’ (Ito et al. 2009, pp. 14-18, 35-75).

With hindsight, the HOMAGO book and the interventions it helped inspire and justify illustrate how anthropological critiques of mainstream cognitive theorizing from the 1980s and early 1990s can spread in ways that tend towards what I am calling perspectival inversion. While we presented HOMAGO as a mostly descriptive account of U.S. young people’s practices with digital media, a close reading evinces a proclivity to be in congruence with our funder’s

aspiration to transform educational institutions and processes for the digital age. For example, our notion of ‘geeking out’ was not just a descriptive category of how some, but not most, young people described their engagement with digital media technologies; it was also a normative target that could be deployed by designers of educational interventions and technologies. Implicitly in HOMAGO and explicitly in subsequent applications of the concept, ‘geeking out’ tended to be figured as a mode of digital media engagement that educational programs and technology designers should attempt to cultivate in young people. Similarly, young people could be evaluated and compared against each other based on the degree to which they ‘geeked out’ with media technologies. This comparative measure, in turn, allowed for problematizations that legitimated educational interventions that were being developed by other scholars in the DML community. For example, the notion of the ‘participation gap’ (Jenkins et al., 2006), which can be read as a measure of who is and is not ‘geeking out’ with digital media technologies, legitimates philanthropic interventions and educational reform initiatives that attempt to close the gap. The MacArthur Foundation sponsored several such design interventions that took up our concepts in these ways, and through my work on the Digital Youth Project I was able to gain access to ethnographically study one of them: an attempt to redesign the public school for the digital age. It was through my work on that project that I became more sensitive to how even counter-hegemonic anthropological theorizing can aid, if often unintentionally, in processes of perspectival inversion and, thus, in remaking the structures and processes that the original theory critiques. The remainder of this chapter sketches these dynamics.¹⁰

A School for the Digital Age

In the late 2000s I began a multi-year ethnographic study of an ambitious and well-intentioned reform project that had been sponsored as part of the Digital Media and Learning initiative: an attempt to ‘reimagine’ the public school for the digital age. The school, which I refer to as the Downtown School, was launched in New York City with considerable support from several philanthropic foundations, including MacArthur, the city government, local universities, and transnational media and technology corporations.¹¹ Not long after it opened, the school also received prominent positive attention from local, national, and international news media. All these parties seemed to agree that the Downtown School was an especially innovative and promising attempt to transform schooling for a new digital era and economy.

In crafting designs for a new type of school, the project’s founders and backers drew heavily on the anthropological critiques of mainstream cognitive theory discussed earlier in this chapter as well as on concepts that were being developed by the Digital Youth Project and other members of the DML community, such as Henry Jenkins and James Paul Gee. According to the school’s founders and backers, conventional schooling was badly out-of-touch with ‘a digital, information rich, globally complex era prizing creativity, innovation, and resourcefulness.’¹² Drawing on *Situated Learning* and other critiques of conventional approaches to school-based learning, the school’s founders and backers critiqued conventional schools for being overly bureaucratic, hierarchical, formulaic, and restrictive. Echoing anthropological critiques of mainstream cognitivist theorizing, they contended that conventional schools prioritized the perspectives of experts and adults while neglecting the perspectives, interests, and practices of learners and young people. Like the anthropologists’ critique of cognitive theory, the school’s designers critiqued conventional schooling for focusing on standardized forms of instruction and assessment, and, as such, they rewarded passive behaviour and obsequiousness from students at a

historical moment when creativity and innovation were prized. Rigid pedagogic scripts and strict hierarchies of authority, the school's designers and backers claimed, did not cultivate in students the agency, creativity, technical savvy, and unconventional thinking that the twenty-first century demanded. Additionally, the school's designers and backers argued that their transformation would address the entrenched inequities of canonical schooling. Conventional schooling was so out-of-touch with the realities of the contemporary world, they contended, that it was no wonder that so many students, and particularly students from non-dominant backgrounds, were bored at school and not succeeding.

As an alternative, the school's founders designed the Downtown School to be organized like a game and sought to weave digital media throughout the curriculum. Both of these design decisions were made in an attempt to appeal to what the school's designers presumed were the interests and perspectives of young people, whom they figured as members of a 'digital generation'. Their primary intellectual inspiration and justification for their vision of 'game-like' schooling came from the sociolinguist James Paul Gee and his colleague David Williamson Shaffer, both of whom had written influential books on the educational potential of video games (Gee, 2003; Shaffer, 2006). Gee and Shaffer also drew heavily on Lave and Wenger's theory of situated learning, transposing it to the digital realm, much as we had attempted to do in HOMAGO, and Gee was one of the main figureheads in MacArthur's DML initiative. In this 'game-like' model, students would be active and creative participants in the production of knowledge, rather than passive recipients. In a nod towards Lave and Wenger's notion of communities of practice, the fictive worlds of games were thought to furnish students with the necessary social context for learning. Students, in this view, would collectively and willingly 'take on' the roles of scientists, designers, coders, and other knowledge workers as they actively

tried to solve problems in fictional game worlds that the school's designers had created. What is more, and in a gesture towards our valorization of 'geeking out' in HOMAGO, students at the Downtown School would learn to hack, remix, and produce media and technology. Similarly, the clear hierarchies of authority between educators and students that are common at conventional schools would be redrawn. Teachers at the Downtown School would act more like mentors and coaches than disciplinarians. Relatedly, students would be networked to each other and to various online communities, allowing them to learn by way of participating in 'networked publics,' as we'd theorized them in HOMAGO, and to connect their school lives to other situations in their lives where learning took place, which DML scholars were in the process of formulating as a prescriptive educational model they called 'connected learning' (Ito et al., 2013). Finally, the school would welcome students from any background, thus closing the 'participation gap' (Jenkins et al., 2006) and equitably preparing a new generation for the unprecedented opportunities and challenges of the twenty-first century.

On this last point, the Downtown School was admirably distinct from most public schools in New York City. The school opened with a single class of seventy-five sixth graders (ages 11 and 12) and added a class each year until the first class reached twelfth grade. I followed the school's first class of students from the school's founding until that class graduated from eighth grade. In the school's first year, approximately half of the students came from middle and upper-middle class households. The parents of these comparatively privileged students tended to have graduate degrees and successful careers in the culture industries, including academia, media production, design, publishing, and art. Nearly all of these more privileged students identified as White or Asian-American on Department of Education (DOE) surveys. Contrasting sharply with these students were students from significantly less privileged social backgrounds.

Approximately 40 percent of the school's first class of students qualified for free or reduced-price lunch, a common proxy for lower socioeconomic status amongst education researchers in the U.S., and nearly all of these lower-income students identified as Black or Latino/a on DOE forms. Finally, the school attracted boys to girls at an approximately three-to-two ratio, an early indicator that the school's innovative new model might entail unexamined cultural biases.

Sanctioned and Unsanctioned Counterpractices

When I began fieldwork at the Downtown School, I was interested in developing an understanding of the various peer collectives, or cliques, that students formed by way of attending the Downtown School. My attention to the students' peer collectives had been informed by my reading of Lave and Wenger (1991), which stressed the importance of focusing on the perspectives and experiences of learners over pedagogues, as well as classic ethnographies of schooling that also privileged student experiences, such as Paul Willis's *Learning to Labor* (1977), Penelope Eckert's *Jocks and Burnouts* (1989), and Bradley Levinson, Douglas Foley, and Dorothy Holland's edited volume *The Cultural Production of the Educated Person* (1996). All of these works argued, convincingly in my opinion, that broader processes of social and cultural reproduction and change were mediated by the partially autonomous practices of youth peer cultures. According to these ethnographers, institutionalized schooling did play a pivotal role in legitimating the sorting of new generations into the highly unequal positions of the adult division of labor, as more structural analyses of schooling (cf. Althusser, 1971; Bourdieu & Passeron, 1977; Foucault, 1977) claimed. However, these ethnographers also argued that these processes were far from determined and that young people were hardly the cultural dopes (Hall, 1981) or docile subjects implied by more structural analyses. Instead, Willis, Eckert, and

Levinson, Foley, and Holland argued that the cultural practices that young people created and improvised with each other as they tried to give meaning to and forge identities within schools and other adult-controlled spaces mediated broader political and economic processes. Through negotiations over legitimate participation in these peer cultural practices, young people tended to assemble into different informal collectives, or cliques, that, in turn, mediated processes of learning, subjectivation, and, ultimately, social reproduction.

As Eckert (1995) observed, these informal peer collectives have much in common with the communities of practice theorized by Lave and Wenger (1991). They also appear to have much in common with the informal groups that many workers form as they attempt to navigate and give meaning to capitalist workplaces (Van Maanen & Barley, 1984; Orr, 1996). Through ongoing negotiations over legitimate participation in these peer collectives, young people learn about the salient social divisions of adult society as they learn what it means to be a ‘good’ participant in the collective’s practices. Importantly, the legitimacy and value of participation in these collectives is negotiated to a significant degree by members of the collective; legitimate participation in peer collectives is not determined by teachers or managers, but these authorities do play a role in shaping the conditions in which peer collectives assemble.

I was curious to see if and how these processes might play out differently in an organization that, echoing both anthropological critiques of mainstream cognitive theory and popular discourses emanating from the tech industry, aspired to upend bureaucratic hierarchies and cultivate the agency, creativity, and autonomy of subordinates. As such, I spent much of my initial time in the field hanging out with the students as they went about their daily school routines. Within a few months of the school’s opening, four dominant peer collectives, or cliques, had emerged. While some students moved between these collectives, some students left

the school, and others arrived, the overall divisions between the cliques remained fairly stable for the remainder of my time in the field despite having to be regularly rebuilt.

From a sociological perspective, these divisions articulated two enduring axes of inequality: gender and racialized social class. All of the cliques were overwhelmingly organized around either a masculine or feminine orientation and, as such, they offered their participants different ways of doing masculinity and femininity (Sims, 2014). While some students occasionally perforated the gendered boundaries of these groups, by and large students clustered in groups where all of the participants identified as either boys or girls. These masculinized and feminized groups were further divided by racialized social class, with a clique of predominantly privileged girls, a clique of predominantly privileged boys, a clique of predominantly less-privileged girls, and a clique that was entirely comprised of less-privileged boys. As noted earlier, these class divisions also mapped onto institutional markers of race and ethnicity.

And yet, despite these divisions, the practices that each collective generated were quite similar. In all cases, the peer groups debated, rewarded, and disciplined what they considered to be legitimate, good, and meaningful activity amongst members of the group. Appropriate and valued uses of technological artifacts, and material culture more generally, was often a subject of these deliberations, much as Lave and Wenger (1991), Suchman (1987), and Hutchins (1995) had theorized. And all of the groups celebrated creativity and improvisation in ways that exceeded the formal expectations of school authorities, as had the authors of HOMAGO (Ito et. al., 2009) and the designers and philanthropic backers of the school.

However, it also became apparent that many of the practices that these peer collectives produced were not in keeping with what many adults who were affiliated with the reform project – including the school’s designers, some of the school’s administrators and teachers, and,

especially, many of the highly involved parents, most of whom were White or Asian-American and economically privileged – had imagined as legitimate unconventionality in a school context. From the moment the school opened, the hope to create a ‘game-like’ model of schooling, in which adult designed game world would stand in for communities of practice, was assailed from multiple directions: many students were not especially taken by, and some mocked, the school’s innovative pedagogic model; teachers expressed frustration about students not following directives; factions of privileged parents circulated rumors and then warned school officials about what they believed was threatening conduct by the cliques of predominantly Black and Latinx students; and members of the administration and design team worried about an embarrassing collapse of their much publicized experiment. By winter of the school’s first year, matters reached a breaking point after a sizable faction of privileged parents threatened to leave the school unless officials instituted strict zero tolerance policies. As I detail in my book, these parents were particularly anxious about some of the less-privileged students at the school, and their anxieties appear to have been molded by unexamined racial tropes and stereotypes (Sims, 2017, pp. 149–158). For example, at a PTA meeting, one parent, a professor, pressed school officials to discipline what she perceived to be dangerous and inappropriate behaviour by some of the less-privileged Black and Latino students, stating, ‘How do you deal with the infectious tendency of this behaviour, that spreads horizontally and infects others? It’s transmitted from generation to generation and from person to person.’ This last remark deserves comment not only because of its invocation of an enduring racist trope – the ‘other’ as an infectious pollutant – but also because it figures horizontality not as an ideal to be reached for, as is the case in the anthropologically derived theories that had influenced the school’s designers, but, rather, as a threat to the moral and social order.

In response to these parents' threats to leave the school, officials finally capitulated and instituted a slew of strict management techniques that are familiar in conventional schools and disciplinary institutions, more generally. In a Tayloristic fashion, school authorities crafted detailed scripts that precisely specified what students should be doing at nearly all points of the day, the movement of students was tightly restricted, educators increased their surveillance of the cliques of predominantly less-privileged Black and Latinx students, transgressions of adult authority were quickly reprimanded, and several of the most influential members of the collectives of less-privileged students were suspended repeatedly. Many of these students who were subjected to the new disciplinary regime eventually left the school, whereas nearly all of their more privileged classmates remained. In short, despite drawing on counter-hegemonic anthropological accounts that celebrated the perspectives of learners, the Downtown School had become much like the urban public schools that it had been designed to replace, and it had reinstated and reinforced the very hierarchies of perspective and authority that it had critiqued. Put differently, the process of perspectival inversion had reached a culmination point.

And, yet, many of the adults who designed and backed the project as well as many of the parents who had called for zero tolerance policies curiously continued to portray the Downtown School to each other, to the media, and to other educational reformers as substantively unorthodox and uniquely organized and equipped to foster young people's creativity, autonomy, agency, and ingenuity. The counter-hegemonic and technocentric imaginaries that had inspired and justified the experiment proved to be remarkably resilient in the face of events that thwarted their realization in practice. How was this resiliency of idealism and hope accomplished?

In my book, I argue that fleeting and often ritualized moments when the school approximated its idealization as an unconventional and subversive intervention – what I refer to

in the book as *sanctioned counterpractices* – played an especially important role in sustaining and repairing many people’s hopes for the experiment (Sims, 2017, pp. 102-108). While much of daily life at the Downtown School came to resemble life at a more conventional urban public school, and while the school was helping to remake many of the social divisions and hierarchies that the school’s designers had hoped to bridge, there were moments when the adult-sanctioned practices at the school approximated designers’ hopeful imaginings. For example, at the end of each trimester educators would diverge from strict school routines and institute a special week-long period in which students worked in groups on a single design challenge, such as building a Rube Goldberg machine. During these periods, reformers’ hopeful imaginaries and the practices of students and educators converged: educator directives waned, unscripted responses by students were mostly accepted by adults, students had to figure out with each other what to do next, time pressures were eased, and so forth. These were moments of sanctioned counterpractice, and during these moments the Downtown School did resemble the sociotechnical imaginaries and anthropologically-derived theories that had inspired and legitimated the intervention.

While these moments of sanctioned counterpractice were fleeting compared to everyday school routines, and while sanctioned counterpractices were carefully bounded temporally and spatially by school authorities, they played an especially prominent role in shaping and sustaining hopeful ideas and feelings about the school, particularly for people who were spatially distal from daily life in the classrooms.¹³ Representations and demonstrations of the school’s sanctioned counterpractices were front and center in the various ceremonies and festivals that school officials organized for parents and caregivers, they were highlighted in tours for prospective families, journalists, city officials, officers from funding agencies, and other invited

guests, and they were regularly featured in the representations of the school in the school's promotional materials, in media produced by the school's philanthropic sponsors, in academic reports produced by other members of the DML community, and in popular television, newspaper, magazine, book, and documentary media that featured the school. Due to their prominence in these more public-facing rituals, demonstrations, and representations, sanctioned counterpractices appeared to help many people who were committed to the project in various ways to establish and maintain a sense that the Downtown School was an especially original and promising new model of schooling for the twenty-first century, one that cultivated creative, tech-savvy, contra-normative subjects. They also appeared to validate the effectiveness of an instrumentalized version of situated learning theory. That they did so even as daily life at the Downtown School became more conventional, and conventionally problematic, testifies to how anthropological critiques can continue to act as counter-hegemonic icons even as they are subjected to processes of perspectival inversion that strip them of their more radical political significance.

Conclusion

The case of the Downtown School raises concerns about how counter-hegemonic critiques developed by anthropologists can be absorbed and instrumentalized as they enter sites of power and are subjected to processes of what I have been referring to as perspectival inversion. On the one hand, institutional appropriations of counter-hegemonic perspectives and theories are understandable: they appear to address many of the well-known and widely felt shortcomings of modern bureaucratic organizations; they promise to make an organization more equitable, innovative, flexible, and competitive; they figure a more meaningful, connected,

agentive, and creative future for subordinates who have little choice but to participate in modern institutions like schooling and corporations; and they espouse an ethos of horizontality and conviviality that contrasts sharply with the rigid hierarchies, social divisions, and inequities that characterize much of modern life. However, reformers who draw on counter-hegemonic perspectives and theories also tend to overlook and downplay the degree to which the institutions they aim to reform continue to rely on coercive and divisive modes of top-down governance. Luc Boltanski and Eve Chiappelo (2005) make a similar observation:

The rejection in the 1990s of hierarchy... is all the more striking in that the readership of the authors concerned basically consists of the *cadres* of large groups and multinationals, which, notwithstanding all their efforts, will have difficulty dispensing with hierarchy' (p. 70, emphasis in original)

This chapter has examined one such difficulty in attempting to dispense with hierarchy. By tracing how anthropological critiques of mainstream cognitive theory and artificial intelligence research in the 1980s and early 1990s were gradually adapted and incorporated into a well-funded attempt to reimagine educational institutions for the digital age, the chapter endeavored to show how counter-hegemonic theories and perspectives were subjected to a process of perspectival inversion that helped remake familiar forms of institutional practice, division, and hierarchy. Like many anthropologists, Lave, Suchman, and Hutchins foregrounded the perspectives and experiences of learners, workers, and other 'just plain folks' (Lave, 1988) in their efforts to challenge dominant common-sense theorizing. The unusually multidisciplinary locations from which they formulated their critiques no doubt contributed to the works'

originality and influence. But it also made their works particularly susceptible to appropriation by management consultants, designers, educational reformers, and other technocratic professionals who (re)design and manage institutions and technologies that are central to the exercise and reproduction of power relations. Such appropriations are not necessarily problematic, and, indeed, it is laudable when anthropological theory travels beyond its usual academic networks and communities. However, the case of the Downtown School illustrates how such appropriations can end up privileging the interests, concerns, and obligations of reformers over those that had been foregrounded in the original critiques, an inversion that generated tensions for reformers between their ideals and acts. I have argued that these tensions were soothed, at least temporarily, through the orchestration, performance, celebration, and widespread publicization of what I call sanctioned counterpractices: fleeting and often ritualized moments when the organization's practices more closely resembled its espoused ideals. While these sanctioned counterpractices were quite effective at easing tensions and rejuvenating morale, in the end they helped obscure and legitimate the school's contributions to remaking many inherited social divisions, power relations, and hierarchies.

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¹ For a more general review of these and other ‘sociomaterial’ approaches to education research, see Fenwick, Edwards, & Sawchuk (2015).

² For a review of how different scholars approached the problem of “situation” and “context,” see (Chaiklin & Lave, 1993; Lave, 2019, pp. 27-50).

³ Tim Ingold mounted similar critiques in his advocacy for an ecological approach to theorizing technical skill; see (Ingold, 1996; Ingold, 1997).

⁴ These anthropological critiques extended far beyond the application of cognitive theory in educational settings, but they also complement and add ethnographic rigor to more sociological

critiques of institutionalized schooling. For examples of the latter, see Apple (2012) and Selwyn (2010). Selwyn's work is relevant to the foci of this chapter in that it critiques mainstream discourses on education technology, many of which deploy concepts and assumptions from cognitive psychology. For an anthropological critique of educational institutions that draws on the works cited in this chapter, see Varenne and McDermott (1998).

⁵ Suchman's (2002) advocacy for "located accountabilities" in technology production makes an analogous point. For an example of how to incorporate institutional analysis into theories of situated activity, see Dorothy Holland and Jean Lave edited volume *History in Person* (2001), and, in particular, their discussion of the notion of "local contentious practice." In a related vein, Lave (2011) reflexively develops and applies her theory of learning to her own transformations as a scholar and theorist working in different institutional arrangements.

⁶ According to Vann and Bowker (2001, pp. 247-248), Etienne Wenger, Lave's co-author on *Situated Learning*, also played a prominent role in introducing anthropologically-informed theories to management consultants when he published a follow-on volume to *Situated Learning*, titled *Communities of Practice* (Wenger, 1998).

⁷ For an account of the formation of the Digital Youth Project, see Ito et al. (2019, p. xiii).

⁸ For example, Mizuko Ito, who worked at IRL and PARC in the 1990s, went on to run The Digital Youth Project before cofounding and acting as Research Director for the MacArthur funded Digital Media and Learning Research Hub at the University of California, Irvine. I worked for the Ito and the Digital Media and Learning Research Hub for several years while I was a graduate student.

⁹ As we stated in the book, networked publics considers "the active participation of a distributed social network in the production and circulation of culture and knowledge" (Ito et al., 2009, p. 19).

¹⁰ For a fuller account, see: *Disruptive Fixation: School Reform and the Pitfalls of Techno-Idealism* (Sims, 2017).

¹¹ While I use a pseudonym for the school, I am aware that the school's uniqueness and notoriety make it impossible to anonymize the school's identity without effacing much of what makes the school theoretically and politically significant. As such, I use additional measures to protect the identity of research participants who shared information with me in confidence or whose actions I observed. I discuss the strategies I used to mitigate these risks in Sims (2017, pp. 182-183).

¹² The quote comes from a report that the school's founders wrote about their planning processes.

¹³ In general, the people who remained most enthusiastic and hopeful about the Downtown School were people with little direct involvement in the classrooms. Given this spatial separation, their understandings and imaginings of the school appeared to be shaped primarily through representations and public rituals.