Plasticity: Accounting for Adaptation in Sociotechnical Systems

RENYI HONG

National University of Singapore, Singapore

This article advances the concept of plasticity to consider the racialized ways by which adaptation is envisioned under conditions of sociotechnical change. When used, adaptation is often advanced as a neutral process, as if adaptation is meant to benefit all populations equally and carries universal meaning for all parties involved. Plasticity raises the point that adaptation comes to us in ways already directed—the imagined shape that adaptation takes is already a notion that privileges some populations over others. Engaging with the critical literature around plasticity and a case study of telecommuting, this essay argues that plasticity can do the important task of orienting us to the structurally unequal nature of adaptation, especially how adaptation to sociotechnical change can be used to perpetuate embedded racial hierarchies.

Keywords: plasticity, adaptation, sociotechnical change, telecommuting, biopolitics

"To survive, to avert what we have termed future shock, the individual must become infinitely more adaptable and capable than ever before" (Toffler, 1970, p. 34). Written by Alvin Toffler in 1970, this statement marks the particularities of understanding sociotechnical change since the late 20th century. The ingenuity of Toffler's thesis lay not in its prescription of change—which has been consistently framed as sources of shock and trauma since the industrial revolution—but in its emphasis on the accelerated demand on adaptation. If changes in the past were episodic, with time provided for adaptive response and relief, Toffler suggests that changes today would increasingly be accelerated and continuous, encroaching on the limits of human adaptability. "Future shock" thus encapsulates Toffler's (1970) warning of a looming "crisis of adaptation" that would unfold in social malaise as sociotechnical changes accelerate (p. 285).

Although adaptation has become a familiar demand of our present, few scholars have explicitly sought to detail the racial biopolitics underlying adaptation. This article develops this through the concept of "plasticity," a term that positions adaptation as a locus for the enactment of racial hierarchies that intersect with class, gender, sexuality, and ability. Plasticity attunes us to the racialized ways by which adaptation is commonly envisioned under conditions of sociotechnical change, enabling an understanding of how adaptation can create differences between populations.

This is particularly important because the discourse on adaptation has become deeply entrenched in our systems. By the turn of the 21st century, dominant sociological accounts positioned modernity as "liquid" and "reflexive," with the solidity of social relationships and life trajectories melting into flux (Bauman, 2000; Giddens, 1991). As Luc Boltanski and Eve Chiapello (2005) note in *The New Spirit of Capitalism*,

"adaptation" has become the primary requirement of success and survival by the 1990s: "Far from being attached to an occupation or clinging to a qualification, the great man proves adaptable and flexible, able to switch from one situation to a very different one, and adjust to it" (p. 112).

Although substantial critical literature already engages the discourse of adaptation—primarily framed through the terms "flexibility" and "resilience"—much of it focuses on the problems that emerge due to adaptation (see Boltanski & Chiapello, 2005; Chandler, 2014; Davies, 2017; Evans & Reid, 2014). Much less explicit are tracings of the biopolitical imaginary founded on the notion of adaptation itself. Here, the concept of plasticity is useful, for it details the ways that adaptivity has historically been embraided in accounts of race. Not only has adaptivity been used to produce social accounts of racial difference, it continues to enforce racial differences through sociotechnical change, masquerading as "organic" or "natural" forces of adaptation (Schuller, 2018).

We can grasp this politic by first tackling the term "plastic" at the level of its materiality. Derived from ancient Greek, *πλαστική*, "plastic" has primarily been used throughout its history to describe the quality of pliability to substance and material, especially in the visual arts of sculpture and modeling (Oxford English Dictionary, 2023). This lineage led the term to acquire its contemporary reference to the synthetic polymer "plastic"—the mass-produced, human-engineered chemical composite that can be flexibly manufactured to possess diverse qualities. From the moldability of sculpting clay to the man-made variability of plastic, the word "plasticity" captures what Heather Davis (2022) calls the "aspirational" logic of pliability: It marks the human desire to tap into and extract value from the transmutational potentiality of matter and positions the form-changing nature of people and things as a site of value generation (p. 10).

But inherent in this will for plasticity lies its violence. As Davis (2022) reminds us, the plasticity of synthetic plastic is inherently partial. Though capable of being manufactured with diverse useful qualities, synthetic plastic is also notoriously difficult to degrade and recycle. Therefore, plastic's aspirational, value-generating plasticity is only made possible through the costly erasure of plastic pollution, unequally burdened on poorer populations and regions (Cubitt, 2017). Plasticity thereby speaks of a model of naïve utopic malleability that externalizes the negative consequences of transmutation, to focus solely on the value that transmutability can bring.

This juxtaposition—of plasticity as aspiration and violence—highlights how plasticity can be utilized as an apparatus that directs adaptation and adaptiveness toward the production and reproduction of regimes of power. Kyla Schuller and Jules Gill-Peterson (2020) make this argument when they name plasticity as biopolitics. "Plasticity is not equivalent to malleability," they write. "It names a specific regime of biocapital that seizes the malleable body as a means to engineer the individual and the population" (Schuller & Gill-Petersen, 2020, p. 2). At stake is not simply whether a population can adapt or how adaptation happens, but *what* gets counted as "adaptation" and *who* benefits from it. To surface this question is to problematize adaptation as a neutral process, as if adaptation is meant to benefit all populations equally, as if adaptation carries a universal meaning for all parties involved. Plasticity raises the point that adaptation comes to us in ways already directed—the imagined shape that adaptation takes is already a notion that privileges some populations over others. Plasticity creates "a set of expectations of who will be useful for what, of what some bodies are for or how some bodies become for, of who and what becomes available as resources to be used

up" (Ahmed, 2019, p. 95). Noticing plasticity is thus critical to any account of sociotechnical change, for it directs attention toward the *differential* ways that populations are expected and made to adapt.

This logic of plasticity is evident in the ideologies of White supremacy embedded in biological paradigms of the 19th and 20th centuries. Discourses of impressibility, eugenics, and evolutionary biology have historically legitimated the limits of plasticity assumed of non-Whites, suggesting that their biological inability to assimilate external stimuli healthily was manifested in racial qualities of inferior intelligence, backward cultures, and hyper/hyposexualities (see Schuller, 2018). "Generally, organic plasticity is equated with potential itself and assigned to whiteness," Schuller and Gill-Peterson (2020) write, and "it is routinely denied to the racialized, whose bodies are seen as rigid, inflexible, overly reactive, and insufficiently absorptive, contagions to the potential growth of the population" (p. 3). Hence, while "whiteness is marked by the capacity for self-making and moving forward through time . . . the racialized body is consigned to the fate of being made to move by others" (Schuller & Gill-Petersen, 2020, p. 3). As example, colonial, anti-Black discourses that positioned African bodies as animal-like, Zakiyyah Iman Jackson (2020) argues, were significant not only in appropriating the vitality of Africans as slave labor. Conflating Blackness with animals also fluidized the bodies of Africans, rendering them "infinitely malleable" and capable of being used in ways that colonial masters and slave owners desired (p. 11).

This explains why the violence of plasticity is rendered particularly clear under settler colonialism. Non-White bodies were often framed as fungible but replaceable. Capable of being purposed for different uses, but never plastic enough to be worth preserving, which rationalized the abuse, injury, torture, and murder of slaves and indentured workers in plantations and settlements (Alaimo, 2010; Batzell, 2014). The racial hierarchies are also used in the 19th and 20th centuries to substantiate the exclusion of Blacks and people of color from procedures like hormonal therapy for gender reassignment, foster families, and rehabilitation from disabilities (Gill-Peterson, 2018; Schuller, 2018; Snyder & Mitchell, 2015). These options were only made accessible to Whites, those assumed to have the plastic capabilities for positive transformation. This history resonates in our present.

It is impossible to do justice to the rich and sophisticated work around plasticity here (see also Bhandar & Goldberg-Hiller, 2015; Malabou, 2022). My intent is to bring this line of scholarship to the attention of communication scholars, activists, professionals, and artists interested in problematizing sociotechnical change. In my work, I have deployed plasticity toward digital labor, seeking to unpack how "disruptions" from work are integral in producing an uneven terrain of adaptation that extends embedded inequalities. Take telecommuting as an example (Hong, 2022). Though telecommuting is largely seen as a *trend* of work, it is more accurately understood as pedagogy intended to circumscribe an imaginary of what "adaptation" to digital technologies might mean to a class of White professionals.

Back in the 1980s and 1990s, feminists and scholars already had seized on the popularity of "telecommuting" to bring awareness to an alternate genealogy of "homeworking," largely comprised of immigrant women of color engaged in exploitative piecemeal electronic work at home (Allen & Wolkowitz, 1987; Christensen, 1988). A 1989 article written by Robert E. Kraut in the *Journal of Communication*, for instance, opened by stating that telecommuting is characterized by "two conflicting images: an optimistic one based on case studies of home-based workers using computer technology and a pessimistic one rooted

in labor history" (p. 20). Following this, Kraut (1989) appended two images that literally contrasted what "telecommuting" meant at that time (Figure 1). One shows a smiling, relaxed bespectacled male executive driving the computer as a car, metaphorically referencing the flexibility and ease provided by the new trend of the telecommute. The other paints a chaotic scene of overwhelmed mothers and children huddled and crammed over a table, strewn in a crowed mess of hands amid computers, stamps, envelopes, and papers streaming from a fax machine (Figure 1). These two images not only signaled the representational contradiction of emergent computing work, but it also raised the important question of *whose* welfare was foregrounded at a moment of sociotechnical upheaval.
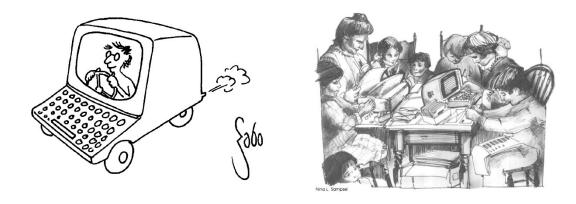

Figure 1. Two images from Kraut (1989, pp. 21, 43).

From there, management gurus channeled efforts toward contouring the identity of the "telecommuter" to preserve racialized plasticity of Whiteness. Similarly troubled by risks of a Tofflerian (1970) "future shock" with the rising use of computers, telecommuting was prescribed as a mode for rendering White workers and families more *adaptable*. With time in the home, gurus suggest, telecommuters could grow into more holistic individuals and cultivate loving conjugal relationships, vibrant suburban communities, and mature, adapted children (Hong, 2022). Gurus actualized this promise by packaging traditional managerial self-help with guidance on marital relationships, childcare, and interior design, suggesting that working from home would transform workers, families, and homes in healthful directions. This positive image of plasticity—the personhoods and surrounds that telecommuters could adapt and grow into—was cemented in the numerous images in books and magazines of telecommuters surrounded by families, suggesting how adapting to computer work in the home would bring out idealized lives for workers and their families. These promises spoke directly to the feeling of imperiled privilege of the White middle classes in the late 20th century. Instead of helplessly facing up to the onslaught of change—risking retrenchment in white-collar jobs (Hatton, 2011), a lonely life in suburbia (Jackson, 1987), and distant, wayward children (Riismandel, 2020), telecommuting suggested that workers at home had the freedom to revamp themselves and their surrounds, creating a new creed of adapted peoples who would thrive in the information age.

Certainly, this potential of plasticity is not limited to White workers and families. But the racialized undertones in telecommuting is unmistakable. For one, the ownership of computers in homes was highly linked to occupational status in the 1980s and 1990s (Patton, 2020). Degree-holding professionals— overwhelmingly White and male—were the group most likely to own and use computers in the home. And this racialization of telecommuting extended to the ways that homes and domestic practices were described. The potentiality of plasticity found in telecommuting catered explicitly to Western White suburban homes and families—they were commodious homes in White suburbs, and its inhabitants were those with the luxury to understand "adaptation" through the lens of becoming more technologically competent (see Applegate, 1989). Placed against the backdrop of racial residential segregation in the United States (Massey & Denton, 1998; Wiese, 2011), these promises of plasticity reveal how adaptation was grounded in racial biopolitics even within early computing.

Adopting the framework of plasticity, as such, involves more than a critique of exploitation in work. It enables us to see how digital labor can manifest as a biopolitical technology that extends hierarchies beyond the formal borders of work. In telecommuting, adapting to digital technologies for work was directed to influence not only the shape of workers but also their intimate spheres of family, friends, and progeny. So as plasticity, telecommuting "adaptation" took on a vision and praxis that spoke directly to preserving racial hierarchies in a populational and generational sense.

That said, plasticity is not solely contained within the boundaries of work and labor—it is connected to any account of sociotechnical change. To return to the initial point that drove this article—what is adaptation?—much of the present dialogue positions adaptation as something necessary and positive: To not adapt is to be left behind, grow worthless, or even be forced into extinction. Analyzing plasticity—or the templates of adaptation that we have inherited—allows us to critically observe the imagined worlds both constructed around and denied of sociotechnical change. If sociotechnical change is a potentiality that offers multiple variants of the future, what plasticity directs attention to is the contingency of this imaginary. Some futures are fielded into reality through their incorporation into official accounts of "adaptation," while others are unspoken of or even penalized through an attribution of maladaptation. At a time where decolonial alternatives are urgently needed, plasticity can offer insight into the lesser, minor, or demeaned futures that are peeking through the official narratives of adaptation. Sidelined as they are, these futures may be useful experimental material for us to figure out what the improvisational potentiality of "adaptation" could be.

References

Ahmed, S. (2019). *What's the use? On the uses of use*. Durham, NC: Duke University Press.

Alaimo, S. (2010). *Bodily natures: Science, environment, and the material self*. Bloomington: Indiana University Press.

Allen, S., & Wolkowitz, C. (1987). *Homeworking: Myths & realities*. London, UK: MacMillan Education.

Applegate, J. S. (1989). The transitional object reconsidered: Some sociocultural variations and their implications. *Child and Adolescent Social Work*, *6*(1), 38–51. https://doi.org/10.1007/BF00755709

Batzell, R. (2014). Free labour, capitalism and the anti-slavery origins of Chinese exclusion in California in the 1870s. *Past & Present*, *225*(1), 143–186.

Bauman, Z. (2000). *Liquid modernity*. Cambridge, UK: Polity.

Bhandar, B., & Goldberg-Hiller, J. (Eds.). (2015). *Plastic materialities: Politics, legality, and metamorphosis in the work of Catherine Malabou*. Durham, NC: Duke University Press.

Boltanski, L., & Chiapello, E. (2005). *The new spirit of capitalism* (G. Elliott, Trans.). London, UK: Verso.

Chandler, D. (2014). *Resilience: The governance of complexity*. New York, NY: Routledge.

Christensen, K. E. (1988). *The new era of home-based work: Directions and policies*. London, UK: Westview.

Cubitt, S. (2017). *Finite media: Environmental implications of digital technologies.* Durham, NC: Duke University Press.

Davies, W. (2017). Elite power under advanced neoliberalism. *Theory, Culture & Society*, *3*(5–6), 227–250. https://doi.org/10.1177/0263276417715072

Davis, H. (2022). *Plastic matter*. Durham, NC: Duke University Press.

Evans, B., & Reid, J. (2014). *Resilient life: The art of living dangerously*. Cambridge, UK: Polity.

Giddens, A. (1991). *Modernity and self-identity: Self and society in the late modern age*. Stanford, CA: Stanford University Press.

Gill-Peterson, J. (2018). *Histories of the transgender child*. Minneapolis: University of Minnesota Press.

Hatton, E. (2011). *The temp economy: From Kelly Girls to permatemps in postwar America*. Philadelphia, PA: Temple University Press.

Hong, R. (2022). Telecommuting Pedagogies: White plasticity and the ecological imaginaries of working from home. *Social Text, 40*(2), 21–48. https://doi.org/10.1215/01642472-9631117

Jackson, K. T. (1987). *Crabgrass frontier: The suburbanization of the United States*. Oxford, UK: Oxford University Press.

Jackson, Z. I. (2020). *Becoming human: Matter and meaning in an antiblack world*. New York: New York University Press.

Kraut, R. E. (1989). Telecommuting: The trade-offs of home work. *Journal of Communication*, *39*(3), 19–47. https://doi.org/10.1111/j.1460-2466.1989.tb01038.x

Malabou, C. (2022). *Plasticity: The promise of explosion* (T. M. Williams, Ed.). Edinburgh, UK: Edinburgh University Press.

Massey, D. S., & Denton, N. A. (1998). *American apartheid: Segregation and the making of the underclass*. Cambridge, MA: Harvard University Press.

Oxford English Dictionary. (2023). *Plastic.* Retrieved from https://public.oed.com/blog/word-stories-precarious/

Patton, E. A. (2020). *Easy living: The rise of the home office*. New Brunswick, NJ: Rutgers University Press.

Riismandel, K. (2020). *Neighborhood of fear: The suburban crisis in American culture, 1975–2001*. Baltimore, MD: Johns Hopkins University Press.

Schuller, K. (2018). *The biopolitics of feeling: Race, sex, and science in the nineteenth century*. Durham, NC: Duke University Press.

Schuller, K., & Gill-Peterson, J. (2020). Introduction: Race, the state, and the malleable body. *Social Text*, *32*(2), 1–17. https://doi.org/10.1215/01642472-8164716

Snyder, S. L., & Mitchell, D. T. (2015). *The biopolitics of disability: Neoliberalism, ablenationalism, and peripheral embodiment*. Ann Arbor: University of Michigan Press.

Toffler, A. (1970). *Future shock*. London, UK: The Bodley Head.

Wiese, A. (2011). Blacks in the suburban and rural fringe. In H. L. Taylor & W. Hill (Eds.), *Historical roots of the urban crisis: African Americans in the Industrial City, 1900–1950* (pp. 145–174). London, UK: Routledge.