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Silvia Lindtner

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Laboratory of the Precarious: Prototyping Entrepreneurial Living in Shenzhen

Silvia Lindtner

Abstract: Making has been envisioned as an enabler of an entrepreneurial self that prototypes hopeful interventions into precarious work and life conditions. This article unpacks how Shenzhen, a city in the south of China, was transformed from a site of low-quality production into the ideal laboratory for this subjectivity of entrepreneurial living. It shows how prominent and mostly male actors began experimenting with professional identity and expertise in design and engineering by articulating their engagement with Shenzhen through feminist and postcolonial critiques. Because these critiques only figured implicitly and were unacknowledged, the potential to build more democratic worlds was undermined. **Keywords:** maker, Shenzhen, feminism, urban laboratory, entrepreneurial

Introduction

In January 2015, the Chinese prime minister Li Keqiang (李克强) traveled to the manufacturing hub of Shenzhen, in the south of China, just a subway ride north of Hong Kong, and visited one of China's early hackerspaces, Chaihuo (柴火). He lauded Chaihuo for its "entrepreneurial spirit" and suggested it was promising for China's future (The State Council, PRC 2015). Chaihuo, similar to many hackerspaces (or makerspaces as they are often called) elsewhere, is a community space where technology enthusiasts get together to tinker with open source hardware and other materials. Located on the second floor of a former manufacturing building in the creative park OCT LOFT, Chaihuo is a small one-room space, filled with a flurry of prototypes, Computer Numeric Control (CNC) machines, wires, electronic components, *Make* magazines, and printed circuit boards,

covering tables, chairs and shelves. This is not the kind of place where one would immediately expect the prime minister of China to ponder the future of his country. A couple of weeks after the prime minister returned to Beijing from his Shenzhen trip, he announced a new national policy aimed at the creation of so-called “mass makerspaces (众创空间),” “mass entrepreneurship (大众创业),” and “mass innovation (万众创新)” (The State Council, PRC 2016). The underlying vision of the policy—as articulated in numerous government speeches and texts—was that a “maker” approach was ideally positioned to cultivate an attitude of self-entrepreneurship, which in turn would help proliferate innovation thinking beyond a set of privileged few. In a speech at the 2015 Shanghai Pujiang Innovation Forum, the minister of science and technology, Wan Gang (万钢), elaborated this as follows:

This is part of the new normal; we need to better transfer academic research into commercial products; science should serve our economy . . . open source and open hardware can help realize this innovation strategy. We encourage . . . mass entrepreneurship in society so that resources are better distributed. . . . It’s the opportunity of the majority, rather than just the privilege of the few, to realize a life long dream. (Wan 2015)

What minister Wan Gang described as China’s “new normal” is a phrase that has been deployed by the government since 2014 to refer to a state of altered social and economic conditions due to what international media described as the first significant slowdown of China’s economic growth since the opening reforms. China’s new normal signals that heightened instability, and precarious work conditions have become literally the norm. The mass makerspace initiative was positioned as an intervention into China’s new normal; various politicians posited that making would proliferate an economy of mass entrepreneurship which in turn would help “stabilize economic growth” and “create job opportunities” (The State Council, PRC 2016). Since the mass makerspace initiative, local governments across the country have supported the set up of makerspaces, incubators, and fablabs. High schools, universities, companies and, somewhat ironically, factories have opened up such new spaces to train students and employees in design thinking, soldering, and pitching to investors. The tone of language in the new policy texts marked a shift in rhetoric emphasizing promise and opportunity for China’s future. It differed from earlier innovation discourse, which had emphasized how China’s modernization

project was lagging behind in international comparison (Lindtner 2015; Yang 2016).

This shift in tone is not insignificant and reflects—as I show in this article—broader efforts to rearticulate Shenzhen as a place that holds promise for technological futures. It was no coincidence that the Chinese prime minister chose to visit a hackerspace in Shenzhen rather than any of the other similar spaces that have popped up all over China the last few years (Lindtner, Hertz, and Dourish 2014; Lindtner 2015). Shenzhen had until recently been largely unknown to technology enthusiasts versed in things like open source hardware, creative work, and venture capital. By the time the Chinese prime minister visited Chaihuo in 2015, this had radically changed. Shenzhen has become known as a “Hollywood for Makers,” touted by prominent Western media outlets such as *Wired*, the *Economist*, and *Forbes* as the “Silicon Valley of Hardware” (Wired Video 2015; Shepherd 2016), “the best place in the world for a hardware innovator to be” (*Economist* 2014), “Silicon Delta” and “hothouse for innovation” (*Economist* 2017). The rearticulation of Shenzhen unfolded through and alongside the transnational proliferation of ideas about making as a hopeful intervention into increasingly precarious work conditions. Makerspaces and incubator spaces at universities and middle schools have popped up in the thousands across regions as politically and economically diverse as the United States, China, South Korea, Indonesia, Ghana, Peru, and Spain, all the while proliferating the same seductive promise: a future of opportunity enabled by the cultivation of entrepreneurship and a future of hands-on intervention into the status quo (Avle and Lindtner 2016; Chan 2014; Lindtner, Bardzell, and Bardzell 2016; Lindtner 2015).

In this article, I unpack how the city of Shenzhen was positioned as a laboratory to experiment with how to implement this promise of making on a mass scale.¹ More specifically, I show how Shenzhen’s sites of industrial production, which previously carried negative connotations of industrial excess exemplary of China’s failures to modernize, were rearticulated as opportunities to prototype technological futures that were about social change, rather than solely about technological advances. This approach was mobilized by a variety of actors, with differing motivations, including Chinese government officials, makers, and entrepreneurs, as well as representatives of U.S. Ivy League universities and consulting agencies as well as European artists and designers. This article focuses predominantly on the discursive and material practices of prominent figures in international cre-

ative and technology industries, many of whom were men.² Their engagement with Shenzhen, I demonstrate, allowed them to experiment with a professional identity that tethered feminist and postcolonial critiques to masculine ideals of the geek, the adventurer, and the explorer.³

This renewed professional, prototyped in Shenzhen, differed significantly from an earlier design and engineering subjectivity—i.e., a removed, distant, and rational thinker working out of the studio or office with clean hands, freed from and unencumbered by the material realities that made digital infrastructures work. He was by contrast engaged with the messy reality of material and physical labor. He reflected on his own biases and was eager to learn from Shenzhen by participating in its production and design cultures. He performed a version of postcolonial critique by pointing to the consequences of Western knowledge work that is blind of its dependence on material labor. I deliberately use the male pronoun here to shed light on how much of this experimentation with a renewed identity, while articulated as challenging the status quo, did not include more explicit attention to how expertise in engineering and design remains difficult to democratize and retains gendered exclusions (Dunbar-Hester 2014). In what follows, I unpack specifically how a turn toward strands of feminist and postcolonial critiques allowed certain people, many of whom were men in powerful positions in the tech and creative industries, to craft alternate subject positions. Their engagement with feminist and postcolonial sentiments was random and remained unacknowledged. This practice presents a twist on what feminist scholar Angela McRobbie (2004) has famously examined as the undoing of feminism in popular culture by acknowledging it only to demonstrate it as no longer relevant. In what follows, I show, by contrast, that in these contemporary experimentations with design and engineering expertise, feminist and postcolonial critiques were relevant yet unacknowledged, which in turn presented an undoing of the very promise of democratizing technology and science that is at the heart of avocations of making and Shenzhen as hopeful for the future (Lindtner and Lin 2017; Lindtner, Bardzell, and Bardzell 2016).

Methods of the Precarious: Entrepreneurial Living

At the beginning of my research in 2009 only a few people knew what making was. This dramatically changed two years into my research.⁴ In that

short time, maker- and hackerspaces had spread across diverse regions, including but not limited to North America, Europe, Asia, Africa, and Latin America, leading practitioners and scholars to argue that making was a significant global movement (Lindtner, Hertz, and Dourish 2014). Over the years, the idea of making and its potential impact had morphed. While making at first was promoted largely as extending earlier visions of hacking (Söderberg 2013), it came to be seen as the ideal pathway toward an entrepreneurial intervention into societal and economic structures (Lindtner, Bardzell, and Bardzell 2016; Avle and Lindtner 2016). Politicians, educators, investors, and corporations across regions agreed that the way to create jobs was to retrain workforces to become entrepreneurial, with a maker mindset of openness understood as a unique way to do so (Lindtner, Bardzell, and Bardzell 2016). The discourse was couched in revolutionary terms and tied to technopolitical aspirations of transforming the nation, visible as much in the rhetoric of bringing back “made in America” in the United States as in China’s eager goal to finally implement its long-held aspirations to transition from “made in China” to “created in China” (Keane 2010; Lindtner 2015; Yang 2016).⁵

Making became so widely endorsed because it was understood by diverse actors as an approach to experiment with new ways of living amidst increasingly precarious conditions. In my early fieldwork from 2009 to 2011, I witnessed how the community spaces that people had set up, from hackerspaces and coworking spaces to incubators, became sites of experimentation with how one lived and worked in China’s new normal. They described to me how their spaces were “safe environments” to enable others “try out new modes of working and living,” which included modalities such as freelance work and entrepreneurship. Many told me how these “new” professional identities allowed them to develop safety nets as the social structures their parents had relied on were dismantled. Since the late 1990s, China has witnessed a process of drastic “informalization of work,” which has created new vulnerabilities in the lives of urban citizens and a dramatic shift from intense employment security before China’s reform era to extreme insecurity (Kuruvilla, Lee, and Gallagher 2011). This informalization of work, Sarosh Kuruvilla, Ching Kwan Lee, and Mary E. Gallagher (2011) demonstrate, was characterized by a dramatic increase in short-term contracts that lack health insurance, benefits, pensions, and unemployment insurance, and the dissolving of previously common life-long job security, also often known as the iron rice bowl. The people who

set up China's first coworking and makerspaces considered this rise in precarity as a kind of normal (Lindtner 2015).

Making was envisioned to address exactly the kinds of challenges that so many felt contemporary societies were facing: top-down decision making, precarious work, passive consumer culture, and neoliberal governance that casts self-actualization as necessary for technological progress, in turn benefitting economic elites (Harvey 2005; McRobbie 2016; Ong 2006). While during the dot-com era, an entrepreneurial attitude of risk taking and flexible work was celebrated as individual empowerment and as necessary for personal success (Neff 2012), the 2008 financial crisis and the rise of digital labor platforms such as Uber and Amazon Mechanical Turk were accompanied by critical voices across scholarly, personal, and journalistic accounts (Davis 2016; Lorey 2012; Irani 2015; Rosenblat and Stark 2016; Scholz 2012). Over the years, I witnessed how people began to challenge ideas of the information society, knowledge economy, and creative class as propagated by influential writers such as Richard Florida, Peter Drucker, Daniel Bell, and others (Webster 2006). The spread of digital work and labor (Fuchs 2014; Scholz 2012) and of precarious conditions amongst the creative class (McRobbie 2016) made these early visions appear idealistic at best, and a betrayal of the promises of digital technology at worst.

The call for a hands-on entrepreneurial attitude in maker-related work was aimed at the cultivation of a self that not only reckoned with these shifts but also intervened in them. Various people who began experimenting with what this new self looked like would adopt a mode of what I call "entrepreneurial living," a constant experimentation with how one lived by way of engaging with technology production. Increasingly, I witnessed people in the tech and creative industries characterize knowledge work as contingent on the offshoring of manufacturing jobs and other forms of invisible labor. It was in this exact moment of a critique of precarity and uneven power relations infiltrating into a broader tech imaginary that an interest in Shenzhen as the ideal laboratory to prototype a model of entrepreneurial living and, by extension, alternate, more hopeful futures began taking shape.

Shenzhen: Laboratory for Future Making

In February 2013, the Shenzhen-based "hardware accelerator" HAX put on a conference under the banner "Generator." The event was in part

aimed at promoting the new batch of thirteen start-ups that SOSVentures, the Irish venture capital firm that runs HAX, had invested in to spend 111 days in Shenzhen to accelerate their ideas and prototypes into end-consumer products. About sixty or so people had gathered on one of the upper floors of a slick, modern high-rise in the western part of the city. There was excitement in the air, a sense of being part of something greater. People from all over the world had come. This included the HAX start-ups' founders and employees who had arrived in Shenzhen just days earlier from cities like San Francisco, Montreal, Singapore, Guiyang, Hong Kong, and Tokyo, as well as a line-up of speakers, many of whom had made a name for themselves as pioneers in Shenzhen such as Eric Pan, David Li, and Bunnie Huang. All of the speakers were men. Jürg Neuenschwander, a documentary filmmaker and colleague of mine from Switzerland, joined with his team and recorded the momentous event. I too had just moved to Shenzhen a couple of weeks earlier to begin the next stage of my ethnographic research on making, hacking and tech entrepreneurship in China that had begun in 2009 in Shanghai and Beijing. "Of course I would move to Shenzhen," many of my collaborators in Shanghai and Beijing commented upon hearing my plans to embed myself as an ethnographer in the kinds of production cultures that were prototyped at the intersection of making and manufacturing in the south of China. Shenzhen, they all agreed, was the place that any true maker (and by extension any researcher interested in their practice) had to visit at least once.

The floors of the building in which we had gathered that day in 2013 still reeked of construction and paint. It was as if the city was getting ready for us, and we were right there to put our own touch on what it promised to become. We all sat down in a room, where the speakers had set up their presentation slides. Cyril Ebersweiler, then-director of HAX, took to the podium to kick off the event. The attire of the organizers and speakers was casual—shirts with prints, jeans, sneakers, a wearable electronic gadget here and there, all things that would make any geek immediately feel at ease. On his head, Ebersweiler wore a pair of electronically powered pink-and-white bunny ears with sensors attached to his forehead that signaled each ear to move forward and sideways based on otherwise invisible brain activity. With his bunny ears moving, giving off a sound a digital creature would make, Ebersweiler began his introduction of the speakers as "amazing folks . . . who I have pulled from all over the world" and who had all been in various ways "engaged with the ecosystem here in Shenzhen." He

added, before turning to the first speaker: “Hopefully I’m proving that you can just be normal and not socially awkward wearing bunny ears. And it’s great, because someday we will all wear them. Awesome!”

Ebersweiler amplified what had already seemingly energized the room—a sense of embarking on an adventure and the opportunity to participate in some “awesome” social and technological transformations. “I want to chat about what’s happening, here [in Shenzhen], really, today. It’s pretty amazing,” Ebersweiler continued. “If you go back in time, we are currently rewatching what’s happened in the 1960s and ’70s. Of course, hardware has been here for a while . . . but this time is different . . . what you see is an uptick in a lot of variables going in the way of entrepreneurs.” HAX was a mentorship and training program, he elaborated further, that would support those who dared to transform themselves. HAX was “really an experiment,” he emphasized, and continued by elaborating his own background. Employed by SOSVentures, he had been investing in software start-ups for many years. Moving into hardware was new and risky, for both Ebersweiler and the venture capital firm, but potentially highly lucrative. Prototyping this future of hardware in China, Ebersweiler stressed, made this endeavor doable, and justified the investment: “You have people here in China that bring it down to business and make it happen. So this is about what’s really happening in Shenzhen today. So we are boldly going where no one has gone before.”

He ended his talk there with the audience clapping and chuckling, seemingly in the know about Ebersweiler’s reference to the notorious opening lines of the American sci-fi television series *Star Trek*: “Space: the final frontier. These are the voyages of the starship *Enterprise*. Its five-year mission: to explore strange new worlds, to seek out new life and new civilization, to boldly go where no one has gone before.” The reference to *Star Trek* rendered familiar, while at the same time unusual, the stipulation that Shenzhen had become the place to implement technological futures. It positioned the thirteen start-ups in the room as adventurous and daring. In the spirit of the voyages of the starship *Enterprise*, they too would “go where no one has gone before.” And just as the *Star Trek* voyagers had transformed themselves into a new breed of explorers, so would the makers-turned-entrepreneurs transform themselves by conquering the unfamiliar worlds of Shenzhen.

Ebersweiler here articulated a sentiment that I would hear throughout my research and that should eventually become naturalized in portrayals

of Shenzhen as the “Silicon Valley of Hardware” (Wired Video 2016). Shenzhen, so the story went, concentrated particular aspects of Chinese-ness that were attuned to entrepreneurial life. Many referred to supposedly inherent personality traits of “the Chinese” such as a pragmatic attitude toward life writ large, clever business acumen, and a natural affinity for agility, speed, and openness. All of these more common Chinese traits, people reasoned, were concentrated in the business and manufacturing culture of Shenzhen. Shenzhen was portrayed as a place built through this very mode of entrepreneurial living.

The city was seen as hopeful because it still concentrated the making-do mentality that once helped build it; Shenzhen was declared a special economic zone in 1979 and was as such one of China’s first regions opened up to foreign direct investments during Deng Xiaoping’s economic opening reforms. Deng declared Shenzhen an experiment for China, in part to appease senior members of the party who ascribed firmly to a Mao doctrine that was highly suspicious of engagement with foreign entities (Cartier 2002; O’Donnell, Wong, and Bach 2017). Shenzhen, in other words, constituted a laboratory to prototype China’s path toward economic opening, globalization, and modernization efforts (O’Donnell, Wong, and Bach 2017). Shenzhen had drawn millions of migrants who, driven by an “economy of desire” for a better a life (Bach 2011), were the ones who implemented the experiment and its unique hybrid of formal and informal economies. When men like Ebersweiler, well versed in the market logics of venture capital and the lingua-cool of Silicon Valley, took the stage at events like the Generator Conference, they drew a connection between Western origin stories of innovation and the experiments that produced Shenzhen. Shenzhen would carry forward, and indeed accelerate, Ebersweiler stipulated, a culture of innovation prototyped by the California counterculture of the 1960s and 1970s. This was possible, many people agreed, because Shenzhen embodied elements of this once-upon-a-time and now often-idealized past of American innovation culture. Previously, Shenzhen’s success was largely considered to be due to its ability to “model itself after international examples” (O’Donnell, Wong, and Bach 2017). In contrast, here, Shenzhen was portrayed as a model *for* international audiences and a laboratory *for* the world, exactly because it retained what had become the past in the West.

Shenzhen was rendered not only a unique place, but also a unique his-

torical moment that brought into alignment uneven temporalities (Hecht 2012), including technological stories of progress associated with a Western past of both opportunity and exploitation, contemporary dreams of future making, and Shenzhen's histories of experimentation. Shenzhen promised simultaneously a *going back in time* and a place where one could *see the future*. Shenzhen, in other words, constituted not only *the place* but also *the time* to be. There was an urgency to people's engagement with Shenzhen, a sense that its hopeful promise was just as fleeting and subject to change as the city's last thirty years of rapid development.

In 2014, Joi Ito, director of the MIT Media Lab, visited Shenzhen with a group of students, guided by Bunnie Huang, a former MIT graduate and prominent hacker who had become well known in maker circles due to his early explorations in Shenzhen. Upon his return, Ito described in a "trip report" how Shenzhen represented a "role reversal" that—as he argued—many in the West failed to see:

What was more impressive to me than the technology were the people that Bunnie introduced to us, such as the factory boss . . . and the project managers and engineers. They were clearly hard-working, very experienced, trustworthy, and excited about working with Bunnie and our friends. They were willing and able to design and try all kinds of new processes to produce things that have never been manufactured before. Their work ethic reminded me very much of what I imagined many of the founding entrepreneurs and engineers in Japan must have been like who built the Japanese manufacturing industry after the war. (2014)

Ito framed Shenzhen as promising for the future exactly because it resembled a past of Japan. Opportunity would arise when students trained in the laboratories of institutions like MIT Media Lab would learn from Shenzhen's manufacturing culture and morph themselves into a productive hybrid. Ito continued: "DJI [a Chinese drone start-up based out of Shenzhen] has the feel of a Silicon Valley startup mashed together with the work ethic and tradecraft of the factories we had been visiting." (2014) Shenzhen was articulated as a place where one could try on a new subjectivity rooted in a commitment to embed oneself into the specifics of Chinese manufacturing culture, portrayed as reminiscent of a work ethic that once had built the United States and—in Ito's example—postindustrial Japan.

Ebersweiler and Ito were not the first to reposition Shenzhen in transnational tech imaginaries. Indeed, much of this work began years earlier when people in China began set up hackerspaces and open hardware businesses (Lindtner 2015). One of the most prominent voices early on was David Li, cofounder of China's first hackerspace and now director of the Shenzhen Open Innovation Lab, and long-term collaborator of mine. Li has spent many years traveling in China and abroad, driven to reposition Shenzhen on the global map of innovation. His articulation work was crucial to get others to see and engage with Shenzhen differently. As early as 2010, Li began articulating Shenzhen's informal production culture of *shanzhai* as a form of "hacking with Chinese characteristics" and as "the long lost twin of open-source" (Lindtner 2015).⁶ These evocative phrases did important work, repositioning both Chinese manufacturing and open source. Open source, Li was adamant to show, had limitations because it was idealized as a counterculture, a form of "good piracy" that intervened into corporate monopoly (Philip 2005). While the hackers of the free world were idealized as acting against an outdated corporate system, the kinds of interventions into Western corporate monopoly performed by *shanzhai* were not seen for their innovative capacity but labeled "bad piracy," Li stressed. While countercultural hacks came with clearly articulated identities, even if continuously negotiated and mosaic (Coleman 2012), *shanzhai* was seldom tied to any individual name or group identity. It was impossible, in other words, to tell an easy success story about *shanzhai*. For Li, to see *shanzhai* and with it Shenzhen as something other than copycat meant to challenge Western authority's claims of what counted as good design and even as proper counterculture.

Since 2014, commitments to seeing Shenzhen anew have been further legitimized by professionals who have stakes in shaping the city's urban fabric. In December 2015, Louisa Mengoni and Brendan Cormier, head and lead curator from the Victoria and Albert Museum in Shekou, Shenzhen, put on an exhibition as part of the Bi-City Biennale of Urbanism\ Architecture (UABB) entitled *Unidentified Acts of Design*. The exhibition featured an assortment of what the curators considered representative artifacts of Shenzhen which remained "unidentified" and hence unseen as design: from "anonymous" *shanzhai* phones to more easily identified artifacts like DJI drones. The curators positioned themselves as correct-

ing such processes of unseeing. In a 2014 blog post titled “Researching Unidentified Acts of Design,” Brendan Cormier wrote:

Unidentified Acts of Design is an exhibition and research project that seeks out instances where design intelligence has occurred in Shenzhen and the Pearl River Delta outside of the conventional notion of the design studio. The project aims to show how in a region of unprecedented growth, which has long served as the factory of the world, design acts can take on unconventional forms and occur in unpredictable places. By seeking out new definitions of what constitutes design, new actors and new objects are able to enter into the canon of the region’s design history, while an expanded sense of design’s relationship with the region can take shape.

When curators “seek out new definitions of what constitutes design . . . outside the conventional notion of the design studio,” they test out a designer expertise that posits engagement with the unseen, as embodied in Shenzhen as its key method. The designer, here, was a researcher, an embedded translator. The project was positioned as part of continuous experimentation with Shenzhen, “act[ing] as a ‘test ground’ for the V&A gallery” to be part of Shenzhen’s first Design Museum (Cormier 2014). The name of the museum, “Design Society (设计互联),” further underscored this approach of experimentation with established institutional forms in the design industry. “It’s a museum, but of a different kind,” explained Ole Bouman, the museum’s director, in an interview with me in 2016. He elaborated further:

I think part of the reason I am here is to help articulate [the museum]. . . . The articulation is part of my role . . . for instance the name Design Society is a perfect example of this articulation. . . . It’s more like an agenda rather than a place. The original name was a place, *bowuguan* [Chinese for museum] and then there was society as an agenda for positioning design. We thought this would be much more out-reaching and societal and that’s why we came to the other name.

He continued by suggesting that this articulation work required a practice of “immersing” and “observing.” It was about being “humble” and about confronting one’s worldviews. Only then can you “see the potential of the city,” learn from its “practical mindset,” and be able to “feel the drive [of the city], to use that energy, to survive, not only to discuss academically, but to live, to survive.”

Feminist and Postcolonial Legacies

Shenzhen as a new frontier for professional development was largely a men's world. Women were not altogether absent though. Indeed, I met many women over the six years of research I spent there. With some exceptions, they were often in the background, offstage, performing important work focused on holding this new endeavor together. At times, women were invited onstage, often to demonstrate that this wasn't just all about the guys. I too was invited to speak and found myself onstage introduced as an expert alongside my interlocutors. At times, I was asked if I knew other women who could be invited to "balance things out." It was my identity as ethnographer, my academic affiliation, and my race that gave me legitimacy. My gender at times helped too, and then at other times got in the way. In 2015, for instance, I was interviewed by a reporter from National Public Radio's *Planet Money* show about shanzhai. After the interview, the reporter asked if I could recommend other people she could interview on the subject matter. I mentioned my collaborators David Li and Bunnie Huang. When the final report was aired on the radio, I was surprised that I was neither mentioned nor featured, while both Li and Huang were included. After I confronted the reporter, I was told that she had thought that the two men were the more authoritative voices on the topic.

As old regimes of gendering in engineering expertise (Oldenziel 1997) infiltrated into the articulations of new identities, I felt strangely ambivalent. I had witnessed over the years how Shenzhen was being rearticulated, both discursively and materially, from a place largely known through stories of outsourcing and low quality production into a laboratory to prototype new entrepreneurial subjectivities. Whose laboratory was this? Do the identity practices I documented here mask power instead of leveling it? Possibilities for a more democratic practice are only implicit here. To make them more explicit, it would be necessary to recognize how the experimentations documented here drew, without acknowledgement, on feminist and postcolonial critiques. Much feminist work has emphasized the contributions by women in the tech industries, often rendered invisible and seldom recognized and valued as innovation. In a parallel move, I argue for the importance of recognizing the legacies of feminist and postcolonial critique that shimmer through in these rearticulations of professional identities in design and engineering. The experimentations documented here borrowed from values articulated by feminist technoscientists, feminist hackers, and postco-

lonial studies scholars. They expressed commitments to engagement (Fox, Ulgado, and Rosner 2015), valued social and cultural rather than only technical skills (Nafus 2011), demystified how established (often) Western regimes of expertise worked (Harding 2011; Philip 2005), and challenged assumptions of a modern, rational body in the West that tamed and spoke for a backward Global South (Chakrabarty 1992). They articulated how a more democratic future of innovation was to be found not in the design studio, but in Shenzhen's "illicit experimentation" (O'Donnell, Wong, and Bach 2017). And yet, I found little to no acknowledgment of the postcolonial and feminist legacies that shaped this work, even if indirectly. The realization of making's promise, e.g., to enable alternate ways of living in increasingly precarious worlds, is only possible if those who are heard by politicians, the media, and investors acknowledge how their own experimentations with and in Shenzhen were enabled by less visible work and legacies, be that feminist and postcolonial critiques or multiple generations of factory workers.⁷

Conclusion

An engagement with Shenzhen allowed particular people, many of whom were men, to prototype a new professional identity in design and engineering. Their engagements with Shenzhen were shaped by a reckoning of the rise in precarious work and labor, which had previously been masked by ideals of the rise of an information society freed from material production and physical labor. Shenzhen granted particular people an opportunity to relive a story of technological promise, hope, and futurity. In this process, Shenzhen was rearticulated from a region caught up in the past of industrial production to a laboratory where hopeful interventions could be prototyped. These articulations were powerful, and came from powerful actors, whose voices were heard and taken up by international media, and investors and Chinese politicians, which is how I began this article. This article draws out the feminist and postmodern ideals embedded in these experiments with a renewed designer and engineer identity. If and only if these underlying feminist and postcolonial critiques were openly acknowledged, I argue, then aspirations of building a more democratic practice of design and engineering might perhaps be possible.

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Silvia Lindtner is an assistant professor at the University of Michigan, School of Information. Lindtner's research focuses on innovation, technology entrepreneurship, making/hacking cultures, shifts in digital work, labor, and industry, and contributes to science, technology, and society studies (STS). China Studies, critical computing, and human computer interaction (HCI). She can be reached at lindtner@umich.edu.

Notes

1. Scholars in STS have drawn attention to the ways in which urban planners, sociologists, engineers, scientists, and designers have long envisioned and built cities as laboratories for social and scientific experimentation (Gieryn 2006; Hommels 2005; Karvonen and Van Heur 2014). This includes experiments and field studies by Chicago School scholars and urban studies in the 1920s (Gieryn 2006) as much as techno-utopian visions of the smart city (Sadowski and Pasquale 2015), culminating in more recent articulations of the fab and maker city as is the case with Shenzhen.
2. Elsewhere I have discussed more specifically the work of China's makers that laid important foundations for Shenzhen's rearticulations since 2007 (e.g., Lindtner 2015; Lindtner, Bardzell, and Bardzell 2016), as well as historical and contemporary practices of Shenzhen's informal economy in manufacturing that enabled much foreign intervention (Lindtner, Greenspan, and Li 2015; Avle and Lindtner 2016).
3. For an overview of masculine values enacted through geek identities see Dunbar-Hester (2016) and Ammari, Schoenebech, and Lindtner (2017).
4. Due to space limitations, I cannot cover in detail my methods and various sites of ethnographic engagements that span more than six years of multi-sited research, with a specific focus on China. For the interested reader, please see my other publications: Lindtner (2015); Lindtner, Hertz, and Dourish (2014); Lindtner, Greenspan, and Li (2015).

5. I build here on Gabrielle Hecht's definition of the term as "the strategic practice of designing or using technology to constitute, embody, or enact political goals" (2009, 15).
6. The term *shanzhai* (山寨) connotes a countercultural spirit that has been applied to describe informal production processes in the south of China since the 1950s (Ho 2010). While it still often carries negative connotations of copycat, fake, or piracy, it has more recently been resurrected as a symbol of a China-specific innovation practice (Lindtner, Greenspan, and Li 2015).
7. See Mary Ann O'Donnell's extensive work (2017) on genealogies of female and migrant labor that was fundamental to the build-up of Shenzhen.

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