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Paradoxes of Participation

Christina Dunbar-Hester

ONE AFTERNOON during a weekend workshop where volunteers were building a new low-power FM radio station, a middle-aged electrician approached me and apologized for making me cry. This was puzzling to me, because I had not interacted with him at any point. I looked at him quizzically, and he quickly realized his error: He had mistaken me for another young white woman with short dark hair. Naturally I wondered what was going on. We figured out he had thought I was a volunteer named Louisa, and he asked me to tell her that he was looking for her, if I saw her. A few hours later, I bumped into Louisa, and alerted her that she was being sought.¹ She declined to explain the situation in the moment, but later in an interview she briefly described what had happened:

I tried to get involved in some carpentry [to build the radio studio]. And I didn't understand what [the electrician] was saying, and I just . . . walked away. . . . But I [had] really wanted to be a part of the carpentry and I wanted to learn and I wanted to get involved.

[Specifically,] he was talking about some kind of nail, and measuring from this point to that point, and I was kind of like, "which point again?" and he got snappish and was just like "just let me do it!" And once you start with the "just let me do it," you don't feel welcome and you don't want to be involved.²

I was present at this gathering, held in rural Tennessee in the spring of 2005, in my capacity as an ethnographer. I was studying the politics of technology in media activism by "deeply hanging out"³ with a group of Philadelphia-based activists who, among other activities, traveled the country building new micropower radio stations at events like this work-

shop. As it happened, while immersing myself in their activities I was inadvertently drawn into the conflict related above, which hinged specifically on matters of pedagogy, novice versus expert status, gender, and technical familiarity. Though my point of entry into this situation was unusual—I was not even involved in the misunderstanding—these sorts of issues were not uncommon amid an ethos where both technical skill and novice participation were prized.

The reality of expertise ran afoul of the activists' exaltation of technical participation. A major plank of the radio activists' work was the promotion of technical participation to novices through various activities such as radio station-building workshops, tinkering meet-ups, and other types of DIY (do-it-yourself)⁴ work with technology.⁵ They routinely presented the work of soldering a transmitter, building an electronics console (as in the carpentry example above), or tuning an antenna to be accessible to all. They invited novices to participate in these activities, to "put their hands on the technology," and held that such experiences in technical participation were liberating. Specifically, the radio activists sought to offer "participation" as an experience to everyday people. They presented technical engagement as a strategy not only for leveling expertise but for increasing political participation as well. They believed that technical work could impart a heightened sense of agency to participants. They recognized that tinkering is as much a form of cultural production as a technical one.⁶

This chapter examines how activist ideals manifest in the realm of practice. To do so, it follows the work of a group of media activists whose work foregrounded engagement with communication technologies. As demonstrated by the anecdote above and a short ethnographic vignette below, the activists, working in a self-consciously collaborative mode, promoted hands-on work with radio hardware as a means of enacting participatory politics. This practice was understood to be in the service of a broader goal of facilitating technical and political engagement through a "demystification" of technology.

The promotion of technical participation as a route to wider empowerment reveals two paradoxes of participation, both of which are foreshadowed above. Louisa's informal and ad hoc attempt to "plug in" to the carpentry work in the radio studio was a result of the radio activists' deliberate choice to leave much of the work of building the radio station relatively unstructured. Their vision for "participation" included the experience of self-guided discovery and learning, and the formation of an affective connec-

tion to activism through the practice of making one's own way. Ironically, though, such a putatively self-directed exploration of new skills can backfire. The radio activists' participatory ideal left Louisa, a novice, dependent on the electrician building the console to teach her about carpentry and electronics. It also made the electrician responsible for helping Louisa move from her absolute beginner status toward a burgeoning sense of technical engagement. But the electrician was not only trying to engage Louisa technically and pedagogically according to the activists' vision; he was also trying to build a working console in a compressed amount of time. This circumstance raised the stakes of his and Louisa's encounter, putting their goals at odds with each other, which in turn undermined Louisa's ability to explore and learn. Thus, a "participatory" mode that made peers responsible for producing the console together was itself responsible for frustrating and alienating a novice to the point of tears.

A second paradox is revealed in how there were patterned gaps in the radio activist organization and volunteer base that undercut the activists' commitment to egalitarian participation. Louisa and the electrician came together at the workshop bearing the full weight of their social identities, which preceded and included relationships with technology. Men were more likely than women to know how to use the tools the activists touted, to build electronics, to be excited by tinkering, and to have the know-how to teach neophytes. This troubled the activists, who fervently hoped to provide a participatory experience that was universally attainable; the last thing they wished to do was to reproduce a hierarchy of technical participation based on gender roles. But technical "participation" was vexed by the gendered legacy of the activities that the activists prized. Women, by contrast, were more likely to exhibit comfort with cooking, cleaning, and managing logistical work. In order for them to move toward technical participation, they had not only to take up new skills and tools but also to leave behind familiar activities—a daunting proposition when *all* of these activities, from soldering to cooking, needed to be accomplished at the activists' worksite. The activists' greater attention to the technical side of work left them unprepared to address gender parity across the multiple domains of work that their practice encompassed.

Background

The activists whose work is presented in this chapter came together in the mid-1990s as a pirate radio collective in Philadelphia, Pennsylvania. After they were raided and shut down by the Federal Communications Commission in 1998, they turned away from broadcasting and toward policy advocacy and building radio stations. Expanding access to low-power FM radio (LPFM) was their main concern, but in the early 2000s they also considered whether and how to expand their mission to “free the airwaves” to include not only radio but also Internet-based technologies, especially community Wi-Fi.⁷ They espoused radical leftist politics and considered their work as occurring against the backdrop of broader social movements for media democracy and social change.⁸ The data in this chapter are drawn from a much larger ethnographic project, including participant observation and around thirty semistructured interviews, conducted between 2003 and 2007.⁹

The group’s activities encompassed both advocacy to change policy (not discussed in this chapter) and assisting citizens and community groups with hands-on work with technology, including building new radio stations.¹⁰ Technical engagement holds a special symbolic value across a diverse repertoire of activist practices. The activists convened weekly tinkering groups to build or repair electronics hardware, held other tinkering workshops like the transmitter workshop described below, and hosted radio station “barn raising,” events where participants put a new radio station on the air over the course of a weekend. Barn raisings were highly symbolic events where the radio activists reinforced their twin missions of community radio and community organizing. The barn raising concept was a self-conscious reference to the Amish practice of people joining together to accomplish a project that an individual or small group alone would struggle to achieve, thereby emphasizing interdependence and cooperation.

Radio activism in this era must be understood as issuing from distinct yet interwoven social, cultural, technical, and political strands. These include embedded practices of community media production and pirate radio; “Indymedia” and the transnational anticorporate globalization movement;¹¹ the emergence of “new media” including the Internet; and a regulatory environment favoring national broadcasting networks and corporate media consolidation that was opposed by a

growing movement for media democracy.¹² Other antecedents to radio activism include ham and citizens band radio, the appropriate technology movement of the 1960s and 1970s, and earlier broadcast reform movements.¹³

Technical Participation in/as Practice

The activists convened another technical workshop that spring on their home turf in Philadelphia. It was organized like a “mini-barnraising” and was oriented around diagnosing and repairing two large radio transmitters from the 1970s that had been donated to the activists by a college radio station in upstate New York. Decommissioned when the station upgraded its equipment, the transmitters were in poor condition, and they were also filthy. They were essentially trash, albeit specialized electronic trash that was of keen interest to activists who valued reuse, keeping old technology alive, and the learning and teaching potential of even nonfunctional elec-



Figure 5.1. A staff activist and two volunteers unloading a transmitter from a truck. Photo courtesy of Prometheus Radio Project.

tronics hardware. Each of the transmitters was the size of a refrigerator (see Figure 5.1). They were not in working order and had been out of use for decades. They were heavy to move, difficult to see into, dirty inside and out, and missing various components. If operational, the signal of one of the transmitters would have been 10,000 watts; the capacity of the other was 1,000 watts.¹⁴

Like a barn raising, the workshop featured explicit teaching tracks running alongside constant work on the transmitters, and people moved fluidly to drop in and out of formal and informal activities. As in a barn raising, the whole group broke for meals together. There were fifteen to twenty-five participants for most of the weekend. These included four to five paid staff members of the activist organization; their interns (at any given moment, the group had a rotating cast of two or three and their internships would last a semester, summer, or academic year); novice volunteers (from Philadelphia and New York City, most of whom had paid a nominal fee to participate in the workshop and learn about hardware); four to five highly skilled engineers who the radio activists had enlisted to help troubleshoot and teach (some local, some from as far away as Washington state and Illinois); and myself as a participant observer. The engineers and volunteers held different sorts of day jobs—some in community media, some as engineers, and some in unrelated fields. All of the engineers helped build community radio stations on a regular basis, though in most cases on an unpaid, voluntary basis; most had formal engineering training of some sort, and the deepest technical expertise in the group resided with them.

The engineers focused on cleaning, assessing, and diagnosing the hardware, while staff activists ran lectures and tutorials for the novices. Volunteers and staff drifted from the formal workshops into the truck in order to clean, ask questions, or simply watch what was going on, and the engineers would sometimes work on removable parts outside at tables in full view, and make attempts at explaining what they were doing. Since the workshop was in the public outdoors and the weather was pleasant, the activists set up a table with brochures, chatted with passersby about the workshop and the organization in general, and solicited donations. The truck was festooned with a sign that read, “What are these crazy people doing inside that ginormous truck? Come in and find out!” This improvised publicity represented the activists’ symbolic goal of

expanding participation; they would have eagerly welcomed neophytes off the street.

On Saturday, staff activist Jasper led a teaching track about the technical properties of radio, providing an overview of the physical properties of radio, electromagnetism, and hardware. The track was attended by the novices in the group. Simultaneously, people worked to clean the transmitters with rags and toothbrushes, and to perform diagnostic work dominated by the most experienced engineers. Early on, the engineers determined that the higher-power transmitter was in better condition than the 1,000-watt one, so effort was focused on the 10,000-watt machine. Jasper himself had a deeper engineering background than the volunteer workshop attendees, but was largely self-taught, and was less expert than the engineers or Brian, the only staff activist with formal engineering training. Jasper's lecture included an introduction to the parts of a radio station, antennas and standing wave ratio, the electronic components found in a transmitter, and power, moving between political and technical registers and even punning to connect them. He also displayed the activists' idealized model of expertise, stressing that he, too, had recently been a novice and taking pains to promote egalitarianism in technical practice: "One of the good things about me teaching you is that I don't really know that much about radio. I'm not that far ahead of you, as opposed to people who know way more and are basically incomprehensible."¹⁵ He explained resistors as follows:

This is a good word for radicals who are against the state. [laughter] It's measured in ohms. Think about water. The bigger the tube, the less resistance it encounters as it goes through the tube. Resistance is not in itself a bad thing, sometimes in a circuit there are advantages to not letting all the power flow. A light bulb is a resistor, it makes electricity flow slowly and heat up the filament and turn it into light.¹⁶

In tying political radicalism to ohms, his statement conjoins a political stance to technical affinity, in keeping with the activists' wider political project.

In an interview, another activist named Brian reflected on agency and expertise:

You can do any tech project . . . you can do this stuff and you can self-educate. . . . Culturally we have a very expert-oriented society . . . you have all these people who are “experts,” and just because they’re talking at you about these different things, doesn’t necessarily mean they’re right. . . . The big part . . . about not having the engineers do it, it is a demystification, and making people feel like, oh, experts just happen to know this, they’ve just done this a bunch, giving people the feeling, oh, if I just did this enough, I could do this just as well as this guy, as well as this engineer.¹⁷

The activists promoted their vision, which included a demystification of technology, participation by novices, and the leveling of technical expertise through pedagogical activities. But the ideals promoted by Jasper and Brian (“you [too] can do any tech project”) represented fantasy. In fact, many technical projects remain inaccessible without years of training. Furthermore, informal education offered by volunteer or activist associations is often limited due to the way in which they run on donated time, and moreover conduct training outside of formal work or educational activities. That being said, radio is a technology that works relatively well with this fantasy: It is more common and less abstruse than many other technologies.

The equipment was filthy. Nearly everyone took a turn over the course of two days scrubbing inside the cabinets that held the components. Delicate or particularly dirty pieces were removed for special cleaning. A silver-plated vacuum tube had to be dusted and polished. It came out nicely. The most important diagnostic task was to see if the exciter worked. The exciter is the part of the transmitter that produces RF (radio frequency), and it can be assessed with tools and instruments that run on ordinary house current, since it only needs to put out around 300 watts. Other components could amplify this to 10,000 watts—though not at this workshop, as a generator to power up the big transmitters had been deemed a superfluous hassle and expense. Most participants were relieved by this. One of the engineers, Jim, warned everyone: “These big transmitters are dangerous. They must be used with respect. No one should ever repair, maintain, or even turn them on alone. They are deadly and you need another person to push you away if you start to fry!”¹⁸ The task of diagnosing the exciter was largely dominated by the engineers, and the novices did not participate other than by hovering around and asking the



Figure 5.2. Open transmitter cabinet with parts removed for cleaning. Cleaning was a way for novice young women to contribute “productively” to the effort to rehabilitate the transmitters. But it did not aid them in advancing their own technical expertise; in fact, it reinforced a gendered division of labor between those with the most expertise and novices. Photo courtesy of Prometheus Radio Project.

engineers a few questions. At the end of the first day, Jasper and Brian asked the engineers to describe their labors to the group.

The second day of the workshop was less structured than the first. There were no lectures or formalized activities on Sunday. Cleaning, testing, and tinkering with equipment continued. Novice participants found themselves restricted to either cleaning components or helping with meals (see Figure 5.2). None too pleased with this division of labor, they took breaks in which they sat around chatting with one another and ruing the fact that they did not know how to “plug into” the technical work and did not feel especially welcome to do so.¹⁹

Thus the activists’ desire to promote wider participation in technical practice was difficult to implement. Jasper, who had tried much harder than the engineers to make himself seem less expert and more accessible (as demonstrated, for example, by his lecture), was critical of himself and

the activist organization for not trying harder to implement the stated barn raising ideal of “no one is allowed to do anything s/he already knows how to do” over the weekend. The transmitter workshop was a special “one-off” event in some regards; less planning had gone into it, by far, than into actual barn raisings. However, it was not unique in that it combined some formal structure with a strong self-organizing element. And yet the experience of the weekend amply demonstrated that without aggressive measures to combat the hoarding of expert knowledge (deliberate or not), the activists’ vision for ecumenical skill-sharing could not be realized.

Jasper and Brian experienced a special tension, as they had much more technical knowledge than novices and interns but were also less expert than the visiting engineers. They were torn between trying to learn more themselves and extending their own understanding of technical problems on the one hand, and making sure that the engineers included the novices on the other hand. They desired to do both, but these goals were at odds with each other. They both repeatedly stopped the engineers to ask them to explain what they were doing while they were doing it, as well as insisting on accessible and public work reports at the end of the day. Brian in particular had a gentle yet persistent manner and would not permit the engineers to brush off his inquiries or his insistence that they explain their activities to the group and answer questions.

Nonetheless, for a group that contained expert members and that needed to accomplish many tasks, giving its novice members a full and comprehensive understanding would have impeded its engineer members’ abilities to learn as much as they could about what was wrong with the transmitter, and the engineers were not terribly interested in slowing their work down to explain it, let alone give over the equipment and diagnostic tools to novices (see Figure 5.3). And the novices pausing their cleaning activities to learn more from the engineers would have prevented the massive cleaning undertaking from getting as far as it did; novices mostly stuck to what they knew they could do, and did not feel inclined to cease being “productive” themselves, nor to interrupt the engineers. Hence technical nonexperts primarily cleaned and provided meals, while technical experts primarily performed tasks that required electronics expertise.

At the end of the weekend, the transmitters were not repaired and they needed to go back into storage (the exciter worked, but on its own it was of little practical value). Plans were made to bring the engineers back to



Figure 5.3. Engineers removed potentially salvageable parts like an exciter and vacuum tube. Here, an engineer shows the vacuum tube to a volunteer. While engineers advanced the repair mission by sequestering working parts for diagnostics, novices were relegated to tasks that did not require a great deal of technical know-how. Photo courtesy of Prometheus Radio Project.

have another go at the project, probably with a generator. Notably, this was not planned as another pedagogical workshop, and would probably involve a more expert group focused on getting the transmitters running rather than skill-sharing. This decision represented an acknowledgment of the uphill battle of supporting egalitarian technical practice, and indeed the failure of the group to fully implement certain ideals in this case.

To reprise, the activists' stated participatory ideal was that "no one is allowed to do what they already know how to do" at a barn raising. Activists attempted to salt all technical undertakings with pedagogy: Expert engineers and activists were supposed to guide novice volunteers through the assembly of the new radio station, handing tools off to other people to learn new skills. This was seen as an exercise in community empowerment, and technical practices were explicitly linked to political engagement. A staff activist reflected on this, invoking DIY: "[A] big part of the barn raisings [is that] it is a demystification, and making people feel like . . . oh, if I just did this enough, I could do this just as well . . . as this engineer."²⁰ In practice, though, this ideal remained out of reach; there were formidable barriers to leveling technical expertise.

Moreover, if we turn back to Louisa's experience and that of the novices at the transmitter workshop, we will note that this exaltation of "participation for all" glosses over historical reality. Radio tinkering was established as a masculine pursuit in the early twentieth century, and remained understood as an activity pursued by elite boys and men for many decades.²¹ As Susan Douglas writes, "The course of radio's early development was . . . influenced by the professional aspirations and leisure activities of a subculture of middle-class men and boys."²² Far from being "for all" in its early instantiations, tinkering as a hobby often bled into formal employment in technical fields. Hobbyist technical practice was a focal point around which the masculine, white-collar, and elite status of technical occupations became entrenched. Later, the electronics tinkering practices that had crystallized around radio shifted to include computers and programming, but the association of these activities with white and white-collar masculinity was strongly rooted.

The radio activists hoped to challenge these associations by presenting technical affinity as universally attainable, but this approach overlooked the gaps in existing skill and affinity among their volunteer base and the members of the public to whom barn raisings and related workshops were addressed. Some people came to radio activism with already developed

skills and enthusiasm for technical work, while others found these practices foreign. Technical pursuits were fun for some people (especially men),²³ but potentially intimidating or unappealing for others. This was true even though the activists self-consciously tried to distance themselves and their pedagogical practices from the competitive and exclusionary aspects of some engineering and electronics cultures.²⁴

Nonetheless, the historical legacy of electronics employment and hobbyist cultures loomed large. It meant that leadership and teaching work was most often performed by expert men. Women were more often novices. Members of each gender thus experienced unique pressures. As discussed above, the engineers at the transmitter workshop and the electrician at the barn raising were torn between making measurable progress on their technical tasks and slowing down to train novices and allowing them to “put their hands on the tech.” In addition, people who found tinkering and problem solving affectively pleasurable were not necessarily as gratified by ceding control over tools and equipment to novices. The staff activists were more accustomed to working within these parameters, and more committed to “opening up” technology in practice, but the engineers in particular had to be reined in at points.

The burden for women and novices was even greater. Their attention was divided between being useful to the overall effort and taking up the practices suggested by the activists’ vision. The activists promoted the ideal that “no one does what s/he knows how to do already,” giving novices a point of entry into technical work. But this also caused novices to feel conflict over whether their efforts were productive. When people stuck to what they *did* know how to do, more progress occurred. For example, Louisa explained to me that she had sought out the carpentry work only after being relieved from hours on her hands and knees keeping people from tracking mud (a constant feature of the barn raising, as much of it was held outdoors and it had rained for two straight days) into an indoor, carpeted space. She was interested in carpentry specifically because it was unfamiliar to her and because she was feeling burnt out by the logistical work to which she had been assigned. But even though she was exhausted from it, she felt that she could only abandon the mud-policing when someone else could pick up the task. From there, she threw herself directly into a challenging and novel environment, joining the electrician in the studio-in-progress. But as she acknowledged, by this point she was already fairly

exhausted from having contributed her efforts to the organizational work that she had the ability to do.

Similarly, in the transmitter workshop, novices felt they could “productively” help by cleaning the transmitters or preparing meals. But they did not feel that they could effectively shift toward the more arcane tasks related to repairing the transmitters. Their expertise was too scant and they were hesitant to “interrupt” the engineers in order to enact the full pedagogical vision of the activists. They presumed, rightly, that their insistence on immersing themselves in the technical work would actually hinder its progress, if progress was defined as moving toward functioning hardware. While the activists’ mandate to “participate” technically applied to everyone, the *burden* of participation fell disproportionately on women and technical novices. They experienced discomfort along multiple lines, including the feeling that to advance their own learning would not only set back the “technical” progress but also prevent other, less specialized work from occurring. Surfaces would get muddy, meals would not get cooked, the transmitter components would remain caked in filth, and so on.

It should also be noted that “no one doing what they know how to do” could be interpreted to mean that the engineers needed to pitch in with the cooking. But in practice, this did not occur, for two reasons. First, the valorization of technical work as the most prized enactment of the participatory ideal meant that mundane tasks (characterized by Louisa in the interview as “women’s work”) were rendered less visible; they were not constructed as liberating or politically significant in the way that technical work was. Second, the engineers alone possessed the expertise to get the hardware working: Without their efforts in this domain, a new radio station would not get built and the old transmitters would remain broken forever.

Conclusions: Participatory Problems and Potentials

The transmitter workshop contained elements of contradiction in its organization: It was self-organizing, though parts of it were also formally structured. Where did these opposing impulses come from? And what consequences were there for both the material and affective outcomes of the workshop?

The radio activists inherited elements of their practice from the appropriate technology movement of the 1960s and 1970s. According to

historian Carroll Pursell, appropriate technology had origins in “the convergence of a broad countercultural movement, a reassertion of doubts about the role of technology in American life, and the burgeoning environmental movement.”²⁵ These connections were strikingly apparent in the older engineers at the transmitter workshop. They were interested in carpentry and alternative energy as well as electronics and communication technologies. Ranging in age from their forties through their sixties, some were old enough to have perhaps cut their teeth in the original appropriate technology movement. As Pursell notes, a central claim of the appropriate technology movement was that these technologies “worked in gentle partnership with nature and fostered intimate personal relationships.”²⁶ This idea resonates with the radio activists’ notions about the community-level suitability of radio and its ability to foster transformative connections between neighbors.

This heritage played out in complex ways and had multiple implications for the transmitter workshop. Given their emphasis on personal and societal transformation, the activists did not wish to deny participants the experience of self-guided discovery, self-expression, or the formation of affective connection by controlling the workshop too tightly. On the other hand, if participants felt too impotent (or that what they produced was too inchoate), activists risked participants feeling as though their efforts had been wasted. Perhaps ironically, the transformative effects that were presumed to flow from technical engagement (imagined by both appropriate technology and participatory culture; see below) were most elusive when neophytes were denied a structured experience in engaging with the technology.

Especially on the first day, the radio activists cultivated structure. As previously described, they offered a formal teaching track in which novices were given a basic introduction to how a radio station works, with an emphasis on the technical aspects of broadcasting. In addition, Brian and Jasper took pains to interrupt the engineers for formal reports about their diagnostic activities. They insisted on recaps that included time for novices to ask questions (including very remedial ones). This move toward structure kept the novices occupied and included, providing them with tasks to perform and roles to play. It also offered the novices opportunities to speak and participate without fear of being judged as ignorant or a hindrance to the diagnostic and repair mission that was the ostensible goal of the workshop.

At the same time, structure was inimical to other goals of the workshop. On the most basic level, the radio activists sought to provide participants with transformational experiences.²⁷ The imposition of structure could potentially render the activists not accountable to participants' interests or values (especially to their exploration or creative expression). At the same time, a lack of structure ran the risk of producing disabling chaos or preventing the experience from having enough coherence to enable purposive engagement and acculturation. Novices were most frustrated when they were without prompts; "doing it themselves" when they lacked expertise was not ideal for them. And yet the radio activists were loath to impose too much coercive control over the event. This would have seemed to run against many of their organizational values and strong collectivist ethos.

Peer production (or participatory culture) is also highly relevant here as a related mode of cultural mediation. The radio activists' workshop possessed features that made it distinct from digitally networked peer production.²⁸ Namely, it was not digitally networked, distributed practice (though some elements of media activism are); rather, it occurred face-to-face. But its contours otherwise strongly resembled some of the features scholars of peer production have named as most significant. In particular, the workshop represented nonmarket and nonproprietary collaborative practice.

Two prominent claims about peer production are that it is especially egalitarian and especially gratifying for participants.²⁹ However, the radio activism example shows that some of what proponents have tended to assume about peer production is less evident in practice, along both of those lines. Another shortcoming of what Kreiss et al. term the "peer production consensus" is that it masks the fact that the dynamics of peer production may vary widely by site; open source software projects, for example, have traditionally been less committed to the participation of technical beginners, resulting in very different dynamics than those experienced by the radio activists.³⁰ Yet this workshop manifested aspects of participatory culture, including its self-organizing bent, mentoring/pedagogical dynamics, and cultivation of affective ties between members and between members and projects.³¹ The radio activists' case is particularly illuminating for considering the interplay between technical expertise and an activist politics of technology devoted to "participation."³²

Collective collaboration and the valorization of “participation” did not solve the “problem” of hierarchical organization that is often assumed to be a feature of bureaucracies but not of peer production networks.³³ Nor did this mode of practice confer an automatic sense of gratification on all participants. The novices’ experiences show that there are good reasons to be wary of romanticized notions of voluntarism and participation, perhaps especially in the realm of technology. Novices needed guidance but could not easily shed their novice status.

Expertise was a significant issue in the interplay between structure and emergence. In an interview, Brian was critical of the culture of exclusion traditionally prevalent in engineering. He summarized his occasional attempts to “manage” engineers working on the activists’ technical projects: “While I don’t explicitly say, ‘Stop being a patronizing asshole,’ I have tried to communicate that.”³⁴ Yet the problem went beyond merely keeping engineers from turning off novices by “being patronizing assholes.” Indeed, the staff activists, not to mention the novices, needed the engineers if they were to make headway with arcane technical problems such as those they faced with the broken transmitters. Though activists valued self-organization and nonhierarchical participation, differentially distributed technical expertise threatened to exclude novices and erode the potential for “collaboration” that the activists embraced.

Last but not least, the complexity of gender and social identity as they intersected with the exaltation of technical participation presented distinct challenges. The legacy of electronics tinkering as a site where masculinity was constructed and reinforced meant that technical skill and affinity was unequally distributed within the activists’ volunteer base and staff. The greatest concentration of expertise resided with a few expert men. When women and technical novices attempted to plug in to technical participation and put their hands on the radio technology per the radio activists’ prescription, they not only confronted the legacy of their own exclusion but felt torn about neglecting the areas of work in which they were sure they could contribute. And the divide between novice participants and those who were deeply familiar with electronics (including some with formal engineering training) was not easily overcome by a simple prescription to include novices or bar participants from doing anything they already knew how to do; the technical and affective training this proposition required could not be imparted over a weekend. In spite of the activ-

ists' fervor for "demystifying" technology, technical participation as a route to more egalitarian social relations was less effective than hoped.

Rather than simply deeming these efforts a failure, however, we might take these episodes in participation as occasions to reflect on the contradictions between participatory politics and technical cultures predicated on elite forms of practice. The impulse to provide opportunities to attain heightened expertise in domains often closed to some people is admirable; the radio activists' attention to this disparity is commendable. At the same time, placing novices on a path of navigating their own way among experts here inadvertently reinforced hierarchies. It undercut the radio activists' mission to expand technical participation and placed a unique burden on those who already had the least familiarity with and affinity for technical work.

The ethos of "participation" configures acts of production as fun, transformative, informal, and ad hoc. But in fact, such notions belie the expert nature of technical knowledge. In practice, to raise technical novices up out of novice status would require more intensive resources and structure than the radio activists provided. The issues here are twofold: First, groups relying on voluntarism to accomplish labor, especially arcane labor, are plagued by the structural constraints of people donating spare time. The active mentorship required to bring novices to a greater familiarity and affinity for electronics work, for example, is difficult to accomplish when both experts and novices are dropping in and out of technical activities. Second, the ideology of participation serves to downplay the need for structure and resources.³⁵

Thus, to leave the specific contours of "participation" incipient and determined by rushed volunteers on the fly was to miss opportunities to engage novices technically. But arguably, the exaltation of *technical* participation was itself part of the problem. Glossing over the more mundane practices also required to run a successful activist workshop (i.e., cleaning) gave short shrift to the full range of expertise and competence that volunteers—technically expert and otherwise—brought to bear on activist pursuits.

Notes

The author wishes to thank Biella Coleman and Jonathan Sterne for editorial comments on this paper.

1. The names used throughout this chapter are pseudonyms.
2. Interview July 25, 2006.
3. Clifford Geertz, "Deep Hanging Out," *New York Review of Books*, October 22, 1998.

4. DIY has at least two points of origin: first, as a project of masculine home improvement that carved out a masculine domestic domain in an otherwise feminized one; and second, within punk and hardcore music subcultures that called for resistance to the "appropriative and controlling" impulses of the commercial music industry. See Steven Gelber, "Do-It-Yourself: Constructing, Repairing, and Maintaining Domestic Masculinity," *American Quarterly* 49, no. 1 (1997): 66–112; and Steve Waksman, "California Noise: Tinkering with Hardcore and Heavy Metal in Southern California," *Social Studies of Science* 34 (2004): 675–702. Mimi Thi Nguyen discusses the politics of race and gender in punk rock in "Tales of an Asiatic Geek Girl: Slant from Paper to Pixels," in *Appropriating Technology: Vernacular Science and Social Power*, ed. Ron Eglash et al. (Minneapolis: University of Minnesota Press, 2004), 177–90.

5. It should be noted that "technology" is largely an actors' category: The activists understood "technical" to refer to audio, computer, and radio transmission hardware, including electronics and carpentry tools, and software related to the production of community media. (Despite some differences, electronics practice should here be understood as being on a continuum with carpentry insofar as both historically occurred in settings like the "ham shack," a domestic masculine workspace carved out by men in contradistinction to home spaces shared with or controlled by women. See Kristen Haring, *Ham Radio's Technical Culture* [Cambridge, Mass.: MIT Press, 2006].) I do not mean to imply that other forms of interaction with artifacts or techniques are not "technical," but for the sake of the argument presented in this chapter I restrict the use of the term "technical" to the tools and artifacts related to broadcasting and media production.

6. See Carolyn Marvin, *When Old Technologies Were New* (New York: Oxford University Press, 1988), 7.

7. Christina Dunbar-Hester, "Free the Spectrum!' Activist Encounters with Old and New Media Technology," *New Media & Society* 11, nos. 1–2 (2009): 221–40.

8. Notably, groups across the political spectrum have weighed in on media issues, especially to oppose media consolidation; it would be misleading to represent all groups engaged in media activism as having leftist politics. It would also

be inaccurate to represent electronics tinkering as necessarily linked to politics or to leftist politics.

9. See Christina Dunbar-Hester, *Low Power to the People* (Cambridge, Mass.: MIT Press, 2014).

10. Of course, “citizen” is rightly a contentious concept for some. In my use of the term, I wish to signify activity around civic or communal participation, not to marginalize those without full legal status as citizens. (This is important as many media activists have a wider social justice orientation, including immigration rights. Several of the low-power radio stations that this activist group built were with migrant farmworkers’ groups, as well.) Though I do not have space to interrogate “citizenship” here, using it to stand in for a mode of engagement open to “everyone” presents obvious problems.

11. Jeffrey Juris, *Networking Futures: The Movements against Corporate Globalization* (Durham, N.C.: Duke University Press, 2008); Todd Wolfson, *Digital Rebellion: The Birth of the Cyber Left* (Urbana: University of Illinois Press, 2014).

12. Robert McChesney, “Media Policy Goes to Main Street: The Uprising of 2003,” *Communication Review* 7 (2004): 223–58.

13. Regarding ham and citizen-band radio, see Kristen Haring, *Ham Radio’s Technical Culture*, and Art Blake, “Audible Citizenship and Audiomobility: Race, Technology, and CB Radio,” *American Quarterly* 63 (2011): 531–53; regarding appropriate technology, see Carroll Pursell, “The Rise and Fall of the Appropriate Technology Movement in the United States, 1965–1985,” *Technology & Culture* 34 (1993): 629–37; and regarding earlier broadcast reforms see Robert Horwitz, “Broadcast Reform Revisited: Reverend Everett C. Parker and the ‘Standing’ Case (*Office of Communication of the United Church of Christ v. Federal Communications Commission*),” *The Communication Review* 2 (1997): 311–48.

14. Machines running on so much power stood in marked contrast to LPFM transmitters, which by law cannot exceed 100 watts (about the same amount of power as an incandescent light bulb), with which the radio activists commonly worked. The big transmitters were unfamiliar to the core activists due to their power and scale, as well as not being solid-state.

15. Fieldnotes, May 28, 2005.

16. Ibid.

17. Interview, July 5, 2006.

18. Fieldnotes, May 28, 2005.

19. Fieldnotes, May 29, 2005.

20. Interview, July 2006.

21. Susan Douglas, *Inventing American Broadcasting* (Baltimore, Md.: Johns Hopkins University Press, 1987), chap. 6; Kristen Haring, *Ham Radio’s Technical Culture*.

22. Douglas, *Inventing American Broadcasting*, xxii.

23. Tine Kleif and Wendy Faulkner, "I'm No Athlete [but] I Can Make This Thing Dance!' Men's Pleasures in Technology," *Science, Technology & Human Values* 28 (2003): 296–325.

24. Carolyn Marvin, *When Old Technologies Were New* (New York: Oxford University Press, 1988), chap. 1; Sally Hacker, "Doing it the Hard Way": *Investigations of Gender and Technology* (Boston: Unwin Hyman, 1990).

25. Carroll Pursell, "The Rise and Fall of the Appropriate Technology Movement in the United States, 1965–1985," *Technology & Culture* 34 (1993): 630.

26. *Ibid.*, 635.

27. See Katherine Chen, *Enabling Creative Chaos: The Organization behind the Burning Man Event* (Chicago: University of Chicago Press, 2009).

28. See Yochai Benkler, *The Wealth of Networks: How Production Networks Transform Markets and Freedom* (New Haven, Conn.: Yale University Press, 2006); Daniel Kreiss, Megan Finn, and Fred Turner, "The Limits of Peer Production: Some Reminders from Max Weber for the Network Society," *New Media & Society* 13 (2011): 43–259; also Adam Fish, Luis Murillo, Lily Nguyen, Aaron Panofsky, and Christopher Kelty, "Birds of the Internet," *Journal of Cultural Economy* 4 (2011): 157–87.

29. Kreiss et al., "The Limits of Peer Production."

30. Gabriella Coleman, "The Political Agnosticism of Free and Open Source Software and the Inadvertent Politics of Contrast," *Anthropological Quarterly* 77 (2004): footnote 10.

31. Henry Jenkins, *Convergence Culture* (New York: New York University Press, 2006).

32. Independent Media Centers, Anonymous, and Riseup are activist technical projects that struggle with the politics of inclusion/exclusion of people with differing levels of expertise, whereas Tor and open source software projects are comprised more uniformly of technical experts, thus obviating some of the conflicts between engineers and laypeople. The growing open source hardware movement may bear closer comparison to technological media activism than software projects. Adam Fish et al. warn against generalizing about peer production in "The Limits of Peer Production."

33. Barley and Kunda warn against what they call "conceptual inversion," arguing that the notion that "networks are not hierarchies" is overstated. Stephen Barley and Gideon Kunda, "Bringing Work Back In," *Organization Science* 12 (2001): 76–95.

34. Interview, July 25, 2006.

35. Thanks to Biella Coleman for her help in drawing out these points.

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