

AFTERWORD

Dwelling on making

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The maker movement is a vast umbrella that encompasses a variety of tools, practices, and backgrounds. The movement started with a bang in 2005, when CEO and Founder of Make Media Dale Dougherty ushered in a new era of DIY making with the release of *Make* magazine, a quarterly publication that featured inventions, quirky installations, and high-tech productions that hobbyists could recreate using inexpensive materials and household items. Through opportunities to submit ideas and project documentation to the magazine, a tech-influenced DIY community of makers discovered the value of learning from one another as much as sharing their own work. Thus, in 2006, Dougherty's company, O'Reilly Media, founded the first Maker Faire in San Mateo, CA, a public celebration of "arts, crafts, engineering, science projects and the Do-It-Yourself (DIY) mindset" (Maker Faire, n.d.). The first Faire, dubbed the world's largest "show-and-tell," featured over 100 exhibiting makers, hands-on workshops, demonstrations, and DIY competitions. Within a decade of its debut, Maker Faires had sprouted up around the world, from independently produced local events to one hosted in the White House in Washington, DC.

At the same time, MIT Professor Neil Gershenfeld's Center for Bits and Atoms was exploring new possibilities for creative fabrication, both personal as well as digital (Gershenfeld, 2008). His invention of "fab labs"—personal fabrication spaces that gave people the possibility to produce products in their home by combining consumer electronics with industrial tools—marked a significant shift from code and engineering being the language of specialists toward discovering new technical possibilities for using these skills in creative capacities. What excited the public was that new technologies, now accessible from within the home, could do things that they hadn't seen before, as well as rethink the traditions of crafting and hobbyism for the twenty-first century.

Much of the success of the maker movement came from the incorporation of multifarious new tools and technologies side-by-side with low-tech tools and forms

of making that invited broader participation. However, alongside the maker movement's rise came a revival of the CS4All movement and STEM, which aligned well with the maker movement but shifted the focus of makerspaces and making from being open-ended arts and learning experiences to ones shaped by STEM and its histories. This became a flattening of what could be explored to reifying the same inequities that historically pervade technology-rich endeavors. This shift is reflected in surveys of makerspaces conducted over the past decade, where educational makerspaces in the early 2010s saw themselves as most aligned with the arts and media arts writ large (>70 per cent), while by the latter half of the decade, they saw themselves as most closely aligned with STEM and engineering (>60 per cent) (Chang et al., 2015; Pepler et al., 2018). This shift is due in part to the complex relationship between the politics of funding, as well as endemic of the greater societal investment in STEM fields as being the keys to future opportunity and employment. But what this means is a narrowing of the potential of the educational experience of making one more focused on a subset (and overvaluation) of literacies as opposed to the panoply of cultural and participatory possibility suggested at the start of the movement.

As an international volume, this book represents a diversity of views as well as rekindles what we think is possible within the maker education movement. While many have written on the value of creating makerspaces in schools, out-of-school centers, and homes, the notion of “dwelling” helps to theorize and push these previous insights forward. As argued in this volume, dwellings are more than spaces; they are vessels of shared history and patterns of interaction, where traditions are formed and passed down, where the use of the space shifts over time to accommodate the changing needs and rituals of its inhabitants. Considering makerspaces as dwellings invites us to consider the back-and-forth that shapes the evolution of makers, their tools, their inspirations, and their processes. Throughout these chapters, we become reconnected to a diversity of maker literacies, better understanding of the complex institutional impacts and intra-actions at play in a robust makerspace. This collection of essays speaks to the potential of what makerspaces have to offer and serve as an inspiration for how we can steward our makerspaces to be inclusive and rich with creative potential.

I, like many others, originally came into this work enchanted by the possibility of what the educational value of making could mean for the future of literacy and learning (Pepler, 2013; Pepler & Bender, 2013). My background as an artist resonated with the maker movement's unique blending of craft and new technologies as a means to transform the creative space, as well offer up new possibilities for the arts, creativity, and other forms of becoming. At its best, the act of making takes activities that we might normally see as narrowly technical and makes them part of everyday forms of expression. In my work on the development of the visual programming platform Scratch (Resnick et al., 2009), I saw young people, challenged to even identify printed letters, expressively use the tool while hardly being aware that the creative projects they were making were actually teaching them how to code (Pepler & Warschauer, 2012). Instead, they saw Scratch as being

“like paper” because it enabled them to create “whatever they want” (Peppler, 2010). Celebrating a diversity of maker literacies also makes it possible to bring in under-represented voices to the advancement of technology and innovation. By engaging new audiences in aspects of design, fashion, crafting, circuitry, engineering, and computer science, e-textiles, afforded by the creation of Leah Buechley’s LilyPad Arduino microcontroller, opens up the possibility for what can be created at the intersection of technology, craft, and culture, who could create it, as well as how we could approach the learning of disciplinary content (Buechley et al., 2013).

What I hope the readers will take away from this volume is inspiration for the possibilities to move in multiple directions and to reclaim makerspaces as places for literacy, the arts and creativity as well as STEM endeavors. I hope that researchers will look again at the value of dwelling in makerspaces and overturn much of what they thought they were seeing in favor of trying on some new frameworks and foci of their research. I hope that administrators and funders see these insights on the types of programs to support as well as give educators, parents, and youth the opportunity to take the work in new directions not even charted in this volume. I see this volume as a promising articulation of maker literacies to serve as a strong foundation for work moving ahead in this area.

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