# Editorial Board Thoughts: Libraries as Makerspace?

**Tod Colegrove**

Recently there has been tremendous interest in "makerspace" and its potential in libraries: from middle school and public libraries to academic and special libraries, the topic seems very much top of mind. A number of libraries across the country have been actively expanding makerspace within the physical library and exploring its impact; as head of one such library, I can report that reactions to the associated changes have been quite polarized. Those from the supported membership of the library have been uniformly positive, with new and established users as well as principal donors immediately recognizing and embracing its potential to enhance learning and catalyze innovation; interestingly, the minority of individuals that recoil at the idea have been either long-term librarians or library staff members.

I suspect the polarization may be more a function of confusion over what makerspace actually *is*. This piece offers a brief overview of the landscape of makerspace—a glimpse into how its practice can dramatically enhance traditional library offerings, revitalizing the library as a center of learning.

**Been Happening for Thousands of Years . . .**

Dale Dougherty, founder of MAKE magazine and Maker Faire, at the "Maker Monday" event of the 2013 American Library Association Midwinter Meeting framed the question simply, "whether making belongs in libraries or whether libraries can contribute to making." More than one audience member may have been surprised when he continued, "It's already been happening for hundreds of years—maybe thousands."[1]

The O'Reilly/DARPA *Makerspace Playbook* describes the overall goals and concept of makerspace (emphasis added):

> "By helping schools and communities everywhere establish Makerspaces, we expect to build your Makerspace *users' literacy in design, science, technology, engineering, art, and math*. . . . We see making as a *gateway to deeper engagement in science and engineering but also art and design.* Makerspaces share some aspects of the shop class, home economics class, the art studio and science lab. In effect, a Makerspace is a physical mashup of these different places that allows projects to integrate these different kinds of skills."[2]

Building users' literacies across multiple domains and a gateway to deeper engagement? Surely these are core values of the library; one might even suspect that to some degree libraries have long been makerspace.

A familiar example of maker activity in libraries might include digital media: still/video photography and audio mastering and remixing. YOUmedia network, funded by the Macarthur

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Institute through the Institute of Museum and Library Services, is a recent example of such effort aimed at creating transformative spaces; engaged in exploring, expressing, and creating with digital media, youth are encouraged to "hang out, mess around, and geek out." A more pedestrian example is found in the support of users with first-time learning or refreshing of computer programming skills. As recently as the 1980s, the singular option the library had was to maintain a collection of print texts. Through the 1990s and into the early 2000s, that support improved dramatically as publishers distributed code examples and ancillary documents on accompanying CD or DVD media, saving the reader the effort of manually typing in code examples. The associated collections grew rapidly, even as the overhead associated with the maintenance and weeding of a collection that was more and more rapidly obsoleted grew more. Today, e-book versions combined with ready availability of computer workstations within the library, and the rapidly growing availability of web-based tutorials and support communities, render a potent combination that customers of the library can use to quickly acquire the ability to create or "make" custom applications.

With the migration of the supporting print collections online, the library can contemplate further support in the physical spaces opened up. Open working areas and whiteboard walls can further amplify the collaborative nature of such making; the library might even consider adding popular hardware development platforms to its collection of lendable technology, enabling those interested to check out a development kit rather than purchase on their own. After all, in a very real sense that is what libraries do—and have done, for thousands of years: buy sometimes expensive technology tailored to the needs and interest of the local community and make it available on a shared basis.

**Makerspace: a continuum**

Along with outreach opportunities, the exploration of how such examples can be extended to encompass more of the interests supported by the library is the essence of the maker movement in libraries. Makerspace encompasses a continuum of activity that includes "co-working," "hackerspace," and "fab lab"; the common thread running through each is a focus on *making* rather than merely *consuming*. It is important to note that although the terms are often incorrectly used as if they were synonymous, in practice they are very different: for example, a fab lab is about *fab*rication. Realized, it is a workshop designed around personal manufacture of physical items—typically equipped with computer controlled equipment such as laser cutters, multiple axis Computer Numerical Controlled (CNC) milling machines, and 3D printers. In contrast, a "hackerspace" is more focused on computers and technology, attracting computer programmers and web designers, although interests begin to overlap significantly with the fab lab for those interested in robotics. Co-working space is a natural evolution for participants of the hackerspace; a shared working environment offering much of the benefit of the social and collaborative aspects of the informal hackerspace, while maintaining a focus on work. As opposed to the hobbyist that might be attracted to a hackerspace, co-working space attracts independent contractors and professionals that may work from home.

It is important to note that it is entirely possible for a single makerspace to house all three subtypes and be part hackerspace, fab lab, and co-working space. Can it be a library at the same time? To some extent, these activities are likely already ongoing within your library, albeit informally; by recognizing and embracing the passions driving those participating in the activity, the library can become central to the greater community of practice. Serving the community's needs more directly, opportunities for outreach will multiply even as it enables the library to develop a laser-sharp focus on the needs of that community. Depending on constraints and the community of support, the library may also be well-served by forming collaborative ties with other local makerspace; having local partners can dramatically improve the options available to the library in day-to-day practice, and better inform the library as it takes well-chosen incremental steps. With hackerspace/co-working/fab lab resources aligned with the traditional resources of the library, engagement with one can lead naturally to the other in an explosion of innovation and creativity.

## Renaissance

In addition to supporting the work of the solitary reader, "today's libraries are incubators, collaboratories, the modern equivalent of the seventeenth-century coffeehouse: part information market, part knowledge warehouse, with some workshop thrown in for good measure."[3] Consider some of the transformative synergies that are already being realized in libraries experimenting with makerspace across the country:

- A child reading about robots able to go hands-on with robotics toolkits, even borrowing the kit for an extended period of time along with the book that piqued the interest; surely such access enables the child to develop a powerful sense of agency from early childhood, including a perception of self as being productive and much more than a consumer.
- Students or researchers trying to understand or make sense of a chemical model or novel protein strand able not only to visualize and manipulate the subject on a two-dimensional screen, but to relatively quickly print a real-world model to be able and tangibly explore the subject from all angles.
- Individuals synthesizing knowledge across disciplinary boundaries able to interact with members of communities of practice in a non-threatening environment; learning, developing, and testing ideas—developing rapid prototypes in software or physical media, with a librarian at the ready to assist with resources and dispense advice regarding intellectual property opportunities or concerns.

The American Libraries Association estimates that as of this printing there are approximately 121,169 libraries of all kinds in the United States today; if even a small percentage recognize and begin to realize the full impact that makerspace in the library can have, the future looks bright indeed.

## REFERENCES


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