ACRL's INSTRUCTION SECTION

Tips and Trends

Instructional Technologies Committee

Makerspaces in Academic Libraries

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Overview and Definition

Makerspaces have become increasingly popular and relevant as libraries continue to reinvent themselves and find new ways of engaging with users. According to a 2013 EDUCAUSE report, a makerspace is a "physical location where people gather to share resources and knowledge, work on projects, network, and build." Their roots are in hacker culture and makerspaces first became popular in engineering and computer science fields. Today, the maker movement has broadened significantly to encompass many educational and creative uses, from medicine to the arts. Typical makerspace equipment includes 3D printers and scanners, but the range of devices and services offered by libraries can vary greatly, from sewing machines and laser cutters to software workshops and intellectual property consulting.

Why Do You Need to Know?

In response to technological change and new demands from users, the profession has shifted away from the idea of a library as a mere repository and toward the idea of a library as a place for innovation and scholarly collaboration. The collaborative, DIY ethos of maker culture provides one appealing avenue for libraries to engage in these new ideas with their campuses and communities. Furthermore, as makerspaces become more commonplace in public libraries, students and faculty may come to expect them from their academic libraries as well. Although individual academic departments will sometimes provide some features of a makerspace, a makerspace in a library provides a common space in which all members of the campus community can access equipment and services and learn from one another. Proponents of library makerspaces also note the opportunity for hands-on, experiential, self-directed, and collaborative learning across disciplines and skill sets (Curry 2017). Students and faculty have the opportunity to work together, try out new equipment and techniques, and learn as much or more from tinkering—or even failing—in a makerspace as they do from traditional learning environments. Even if a dedicated makerspace isn't right for every library, librarians should be aware of the pros and cons of makerspaces and how they fit in with the larger campus ecosystem of learning and technology support services.

Current Applications in Libraries and Higher Education

Makerspaces began as community workspaces, or hackerspaces, and public libraries were quick to see their potential. A growing number of academic libraries are starting their own makerspaces. For example, in a review of academic libraries in New England, Davis (2018) found that only nine had a makerspace established, but seventeen others had concrete plans to establish them, implying that makerspaces are a fast growing trend. There is also now a growing literature on makerspaces in libraries, and ALA alone has published at least three books about makerspaces in the past five years.

In the world of academia, there are as many varieties of makerspaces as there are colleges and universities. The makerspace at the University of Nevada, Reno has a charge to foster regional economic development, and features an impressive variety of industrial grade 3D printers, laser cutters, and lathes. Others, such as Case Western, have makerspaces folded into branded, multi-story innovation centers independent of the library. Small

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to mid-size colleges have also gotten involved with more modest makerspaces, which shows that even with less staffing and less fancy equipment, the heart of a makerspace is what people can do and learn in it.

As with library labs for multimedia and digital scholarship, makerspaces provide a setting that lends itself to innovative models of teaching that go far beyond a teacher- and resource-centric model, as well as the opportunity to foster collaborative relationships between librarians, students, and faculty. One study conducted at a large polytechnic university measured student perceptions of spaces for learning and found that the campus makerspace encouraged the most innovation and exploration (Bieraugel and Neill 2017). In settings like these, students have the opportunity to learn as they go along and share their knowledge with others.

Disciplines such as engineering or computer science are not the only groups to make heavy use of makerspaces. These innovative spaces also foster teaching and learning across the disciplines. For instance, Curry (2017) describes a collaboration between two professors from Education and Classics to help students create 3D models of ancient Pompeii, as well as a theater production that used a 3D printer to create custom props and set pieces. Makerspaces can also be popular with extracurricular clubs, whether they're focused on computers, robotics, or fashion. They can even be used in outreach to alumni to show how the library is changing and innovating, as a Homecoming-centric collaboration between a new makerspace and special collections librarians at the University of Idaho demonstrated (Passehl-Stoddart et al. 2018).

Radniecke and Klenke (2017) describe the well-developed makerspace at University of Nevada, Reno. They stress that setting up the space and purchasing equipment is only the beginning of the process, especially since the most high-tech equipment depends on complex software and might require extensive troubleshooting. They emphasize the importance of workshops and other programming to help users understand how they can use the space and give them the skills to take advantage of it. However, they found that the most popular service was point-of-need consultations to provide individual guidance with software, equipment, and intellectual property. Clearly, a makerspace requires a wide range of expertise, from librarians to technologists to student workers.

Potential Hurdles

Three issues that come up again and again in discussions of makerspaces are space, staffing, and funding to set up and maintain the equipment. Although high-tech equipment such as 3D printers are getting more affordable and easier to use, they can still be quite expensive, especially for professional quality models, and may require extensive renovations to deal with noise control and ventilation. After the initial purchase, funding will also be required for maintenance or replacement as the equipment ages. In some cases, money might be available from grants or from the university; otherwise, funding may have to come from library budgets already spread thin by rising subscription prices. Recovering costs by charging users might be attractive from a fiscal point of view, but may also limit accessibility. Even if cost is not an obstacle, many devices found in makerspaces require extensive training to use effectively. Therefore, libraries must make sure to have staff who can assist users, and they must decide what level of support they will provide—will it be largely a DIY space with minimal assistance, or heavily mediated with lots of educational programming? If libraries do take the responsibility of assisting users, then they must consider how this fits into other staff duties and how much cross-training to do. Some might not see the need for a makerspace or may question whether it belongs in the library or in some other type of campus center. Whatever the scope of the makerspace, it requires a fully thought out plan and buy-in from library staff, administration, and other stakeholders.

Conclusion

Although seen as a fad by some, well-planned and properly supported makerspaces in academic libraries have the potential to democratize access to advanced technologies, stimulate new ways for libraries to think about facilitating learning and creativity, and provide opportunities for outreach to departments, students groups, and the community. In providing common space for a wide range of users to come together, tinker, and learn new skills, makerspaces provide one way for libraries to reinvent themselves while also staying true to their core values.

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Further Readings

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