Make and Remake:
Adapting Library Makerspaces to Meet Institutional Needs

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Abstract

Makerspaces have become a mainstay in many universities in the United States. At the University of Maryland (UMD), there are a variety of makerspaces available to the university community, including in private labs, classrooms, and specially built makerspaces within academic units. When makerspaces were first being conceived at UMD, maker technology was introduced through the University Libraries and grew to include spaces at multiple libraries on campus. As the number and variety of makerspaces has grown at UMD, the libraries have worked to remain competitive and current as other campus and corporate partners developed new makerspaces of their own.

This poster will look at the genesis of makerspaces in the University Libraries at UMD and how the equipment and services have grown with outside changes at the institution.
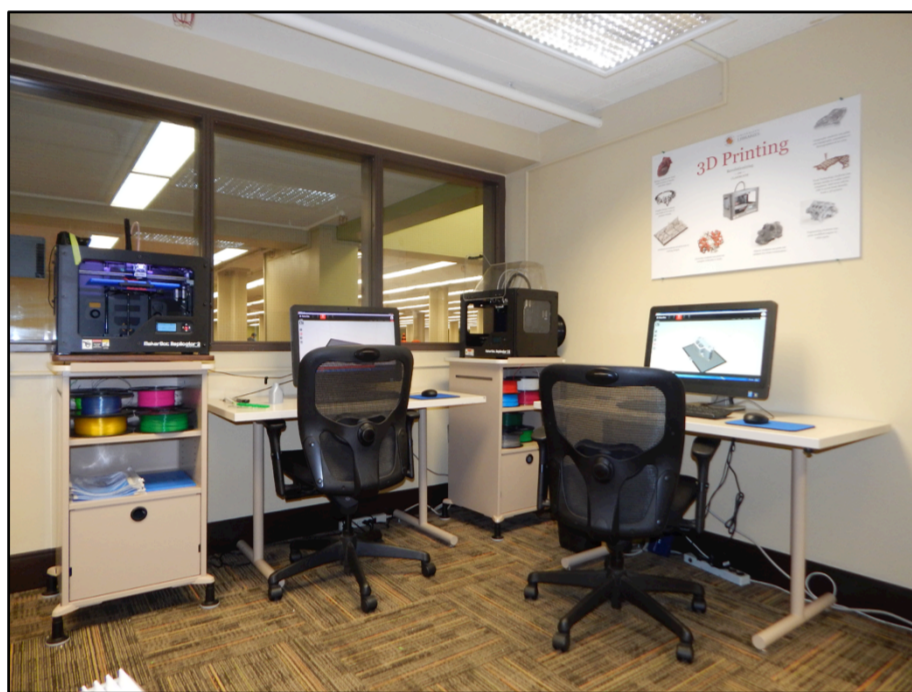
Figure 1: Original Makerspace at McKeldin Library

Genesis

In 2014 the UMD Libraries opened the John and Stella Graves Makerspace[1] in McKeldin Library, the main library at UMD. This makerspace was the first of its kind that was available to the public at UMD. The makerspace was designed as a space for new technologies in the University Libraries.

Around that time maker technology was also added at the Engineering and Physical Science Library (EPSL)[2] on campus. Two 3D printers were added to the library and mediated 3D printing services were introduced. A media studio, including video editing equipment and software, was also developed at Library Media Services.[3]

Figure 2: Original 3D printers at EPSL
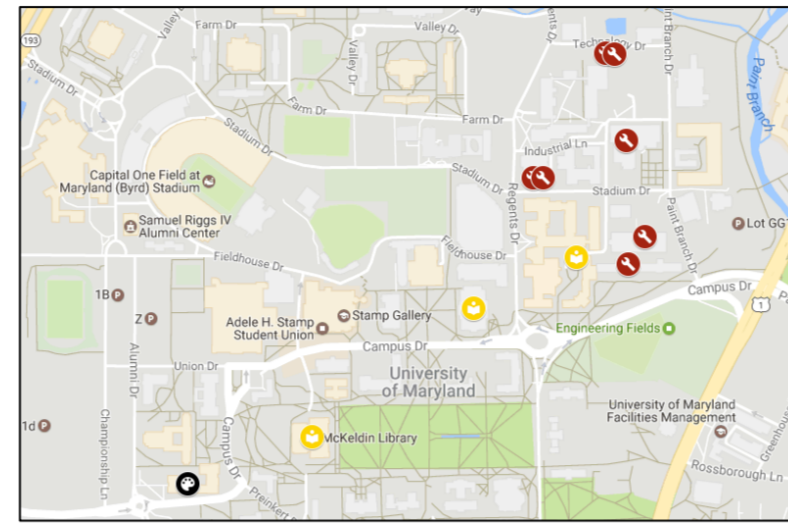**Figure 3:** Media studio in Library Media Services

Figure 4: Map showing various makerspaces at UMD[4]

Changing Institution

As the University Libraries began developing their own makerspaces and introducing maker technology to the university community, different academic units on campus were also creating their own spaces for maker technology.

The A. James Clark School of Engineering developed seven different makerspaces for their their own students to use as part of their studies.[5] The Clark School also partnered with MakerBot to develop the MakerBot innovation center, which opened in April 2015. Most maker technology in the Clark School is reserved for students in specific engineering class or for engineering majors, but some services are available to anyone.

UMD's Department of Art also has a makerspace, which allows Art Studio majors to explore a variety of artistic media and technologies, such as wood working and printmaking.[6]

While these new makerspaces existed on campus, the University Libraries spaces were the only makerspaces available to all users, regardless of academic background or university affiliation.
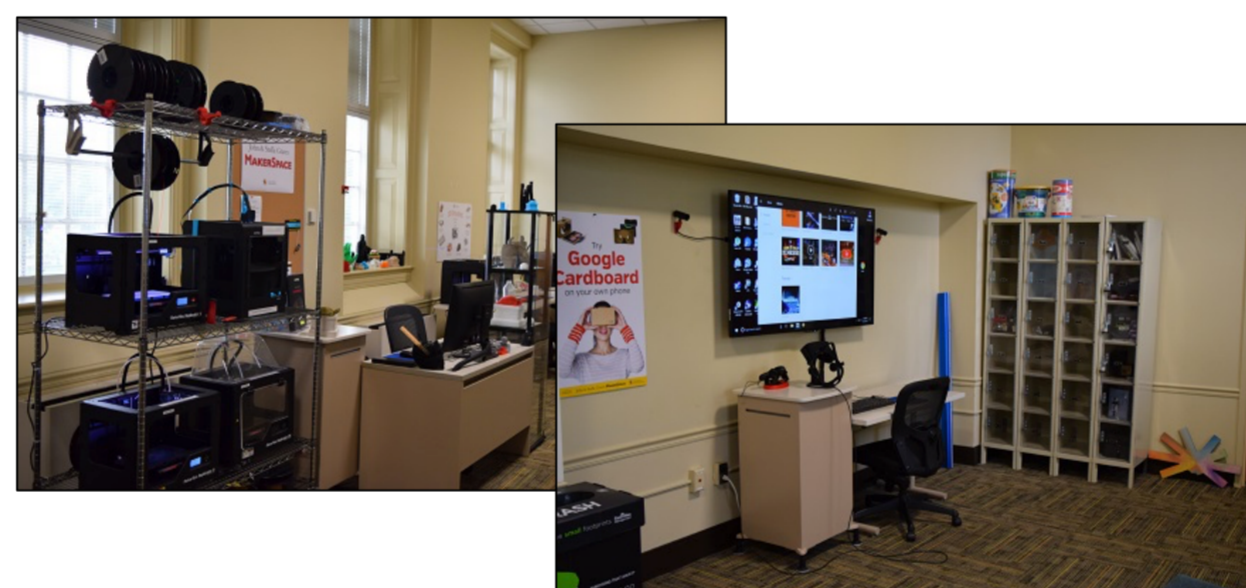

Figure 5: 3D printers
Figure 6: Virtual Reality station

Adapting & Expanding

More makerspaces on campus meant the Libraries needed to stay relevant. Additional technologies were added, such as the recently acquired Zortrax M300, which is capable of printing bigger objects.[7] The Makerspace moved to a larger space.

The goals of the Makerspace also changed, with more of an emphasis being placed on instruction of students and developing competencies with the technology. Mediated services have been increasingly replaced with students and other users working with technology themselves.

The Libraries also solicited ideas for new technology to buy and programs to run based on student feedback. The Libraries' Student Advisory Council has provided feedback along with patrons who are informally surveyed in the library.

Outreach and Instruction

Outreach was increased and librarians have collaborated with faculty to incorporate maker technologies into their courses. Architecture students at UMD worked with a librarian to use the John and Stella Graves Makerspace to 3D print models of historical buildings.[8] A makerspace staff member is currently serving as a mentor for students doing research on 3D printing as part of the Gemstone Honors Program.

The John and Stella Graves Makerspace has also been playing an increasing role in outreach on campus. During the annual Maryland Day, a large day-long open house at UMD, makerspace staff were promoting the technology and encouraging hands on use by future students, alumni, and the general public. Staff also attend other outreach activities at UMD and off-campus.
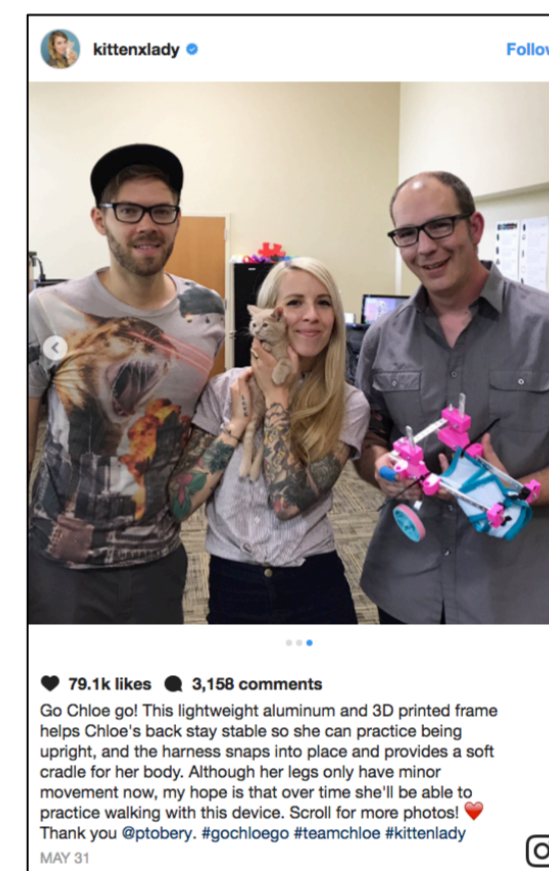

Figure 7: University Libraries staff members helped to develop an assistive mobility device for a disabled kitten
Figure 8: University of Maryland President Wallace Loh tries out the UMD Libraries Google Glass
Figure 9: University Library staff members attending an Alumni outreach event to promote maker technology in the Libraries

Future Directions

The University Libraries have identified emerging technologies as an area of particular interest. To promote the use of these technologies, the Libraries are planning on implementing a model where students explore technologies for an extended period of times and report back to makerspace staff of the potential for using that technology in instruction and the library.

Subject specific makerspaces is another direction the Libraries are looking to explore. Maker tech, such as sewing machines, have been added to the Performing Arts Library and there are plans to expand the current technology offerings at EPSL.

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