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How to Pack a Room: 3D Printing at Albertsons Library

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How to Pack A Room: 3D Printing at Albertsons Library

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Images by Heather Grevatt

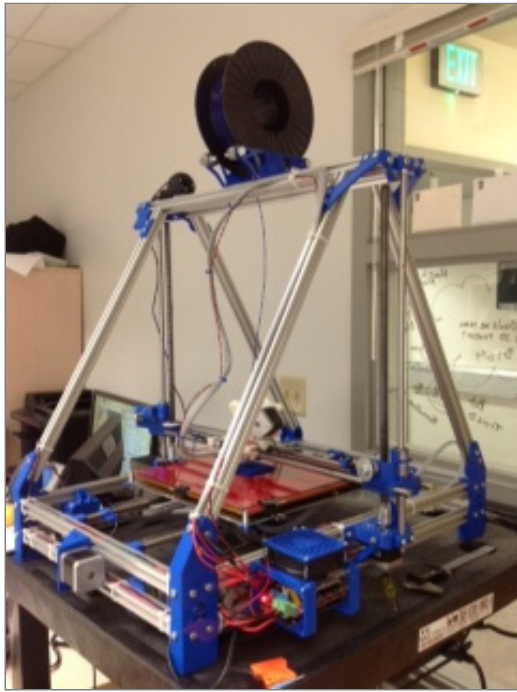
Reasons for a maker culture in an academic library

Libraries have a history of helping their communities create, whether it's writing a paper or acquiring new information on a topic. Libraries have always helped communities learn new skills, and sometimes those skills are best acquired through creating. As technology has advanced, libraries too have evolved to boost individual's digital fluency skills by providing tools and resources to help understand and experience new technology. Albertsons Library strives to help students, staff, and faculty innovate by encouraging collaborative opportunities that promote information access and digital fluency skills. Providing campus-wide access to a 3D printer fits perfectly with this aim by bringing students, faculty, and staff together to investigate a new technology.



Albertsons Library supports the makers on campus through a variety of methods, including yarn bombing activities during finals, displaying student's artwork, and hosting a MakerMixer event where all campus makers could connect. Most recently, Professor/Librarians Deana Brown and Amy Vecchione collaborated with History Professor Leslie Madsen-Brooks on the creation of an ornament for the White House and Instructables ornament challenge. The creators viewed this as an opportunity to gain a greater understanding of how best to learn 3D design and printing. This process served as a way to begin developing a 3D printing service by investigating and troubleshooting common issues where the end goal is to provide 3D printing services to the entire campus community.

Aside from increasing students' digital fluency skills there are lots of reasons that academic libraries should have a 3D printer. Prototyping is something that students in all disciplines will have to do in an ongoing manner. Developing a 3D design is an academic work, and can be stored in your institutional repository alongside peer reviewed journal articles and book chapters. This will also increase access to your work, and provide a means of establishing ownership over the design. Overall, it's a great reason to teach individuals about author rights and Creative Commons licensing. Faculty members are requiring students to create a 3D print as an assignment. Faculty are also creating 3D objects to use



as manipulatives for their classroom. Some faculty members are even using the 3D prints as a way to make topographic maps accessible to individuals with varying degrees of sight ability. Lastly, on our campus, some individuals are using 3D printing for sculpture and visual poetry, even being included in their thesis or dissertation.

Digital Fluency

College students arrive at Boise State at varying stages of digital fluency, but this critical skill is incredibly important to be successful in academia, and in their future employment. Libraries promote all kinds of literacy, and the digital know-how is something we can provide for free in a democratized environment. Equal access to digital equipment can give students an advantage in their job searches.

Companies are expecting students to be able to code in HTML, or to design an object or create something from start to finish. The digital fluency skills students acquire in the 3D design and printing process translate beyond 3D printing. Working through the process gives users an opportunity to work on their problem solving skills in a supportive environment where a “failure” isn’t seen as a roadblock, but as a speedbump. The reward being a sense of satisfaction in going from idea to tangible object.

The Mobile Learning Initiative defined digital fluency for Boise State as “an evolving aptitude that empowers the individual to effectively and ethically interpret information, discover meaning, design content, construct knowledge, and communicate ideas in a digitally connected world. We believe this aptitude thrives when inquiry, play, and exploration are valued and encouraged as meaningful learning experiences.” Albertsons Library is excited to empower our community to increase their digital fluency skills through inquiry, play, and exploration in a supportive environment.

As Albertsons Library is the informal learning hub on campus, we will begin offering a 3D printing service on campus in Spring 2015. Our other maker technology includes hundreds of computers, scanning equipment, video editing stations in the Collaboration Lab, green screen, and our technology check out which includes raspberry pi kits, iPads, video camera, and more! Albertsons Library is poised to facilitate the expansion of of digital fluency across campus.

Connected Learning

Two main factors help students succeed in college: direct, one-on-one contact with a faculty member, and the creation of a group of peers who can help them through the roadblocks towards graduation. To facilitate and encourage the creation of these learning networks, we have held a Maker Mixer event and started a student 3D printing/ maker club. These have served the purpose of connecting people to one another, and to tools to further their learning. The connections made in these informal learning environments provide continuity and awareness of connections not previously seen by the campus community members.

As we work together towards creating a 3D print with a student, we help them become aware of a myriad of services – information sources like databases, faculty members interested in their field, or volunteer and community oriented interests – that they may be really interested in pursuing. These connections help the library become a hub of dynamic information and learning.

Our Process

When presented with this new endeavor, our first reaction was to go into research overdrive. We looked at news articles, academic articles, started following 3D printing blogs, watched webinars, joined social media groups, searched for other universities offering 3D printing, and borrowed from their LibGuides. This was all before we'd even had our first training with the printer! Once we had our first training with the printer, we had a better idea how long prints would take, the amount of prep work needed to get files ready, and the particulars of our printer. This informed our understanding of how the printer might be incorporated into the library's current services, and lead to another

round of information gathering. This second time around we were more focused on service models and how to incorporate it into the curriculum.

Getting Engaged

While learning to use the printer, the team started to think about the process of getting other faculty, staff, and students involved. Since the goal of having the printer located in the library is to make it available to everyone on campus, we wanted to create opportunities to connect and educate. To get these conversations started, we decided to begin by educating stakeholders within the library. The team hosted a talk where the basics of 3D printing were covered, concerns around “Why in our library?” were discussed, as were plans for a 3D printing service. Erica Compton also spoke about maker culture and design thinking principles. This first talk allowed the team to connect with internal collaborators while educating all staff about 3D printing. Shortly after this first talk, the 3D printing group had their first training for library staff and work study students.

After a few months cutting our teeth on the printer, the team felt confident enough to start training other staff on the basics of 3D printing. We invited staff from the 3D printer group, and select staff members, to participate in training on the 3D printer. We asked trainees to arrive with a 3D model they had either created from scratch, or downloaded. They were put in the “driver’s seat” and given a tutorial to walk through. This gave them valuable hands-on experience, while providing a safe and supportive environment where a 3D printer team member acted as coach.

While the 3D printer team was working on developing the tutorial and their skills, there was a very soft release to the campus community about the printer. An online form where users could request a 3D printer consultation was shown to internal staff and promoted at the MakerMixer event. This tool and event were used to spark interest and connect with collaborators across campus. It worked! Through this tool, students and faculty have contacted the library about 3D printing, and a student club for those interested in 3D printing and making is evolving.

We placed a white board marker outside the window where the 3D printer resides and have been asking people who stop by what we should name the 3D

printer. We don't have a name yet, but have lots of suggestions from Big Dilly to Big Blue to Trois D.



Creating a service model

We held weekly meetings to discuss how to begin a 3D printer service. Many staff members were interested for a variety of reasons that ranged from wanting to know how to actually use the printer, to knowing those in their liaison areas would be interested and therefore asking about it. Our proposed service model evolved as we learned more about the 3D printer. After the printer arrived, just a few people ended up working with the printer on a daily basis. The comparative 3D printing services on our campus are open to a limited number of students who are taking one highly specialized course, or the cost is prohibitive as it is for businesses in the community. A library offering this service is democratizing access to an important learning tool.

In general this is what we have learned: be prepared to change as your perceptions about the service and user needs change; no two libraries have the same service model; keep in mind what your stakeholders needs are as you develop the service.

Learning from failures

Uttering the words, "I have no idea what I'm doing," can be both frightening and exhilarating. Frightening, because we are often sought out for our expertise, and uttering these words means a lack of knowledgeable. Exhilarating, because saying these words means you are starting a new adventure, and pushing yourself to

learn something new. Learning something new can leave one feeling vulnerable, so we wanted to give ourselves the necessary room to learn, and be supportive of each other's learning process. With these ideas in mind, the library's 3D printing team began the journey of learning how the printer works, while modeling how we intended to facilitate users' learning.



There were high and low points during the learning process. Some days we were very excited to work with the printer, other days it languished as other responsibilities took precedence. The more we learned, the more comfortable we felt troubleshooting. The more troubleshooting we did, the more confident we felt in our knowledge, and were comfortable sharing that knowledge. Sometimes that knowledge took the shape of a 3D printed object, sometimes it was knowing how to adjust the printer's settings. Those printed objects didn't always turn out how we wanted, but we were okay with that, because we were still able to learn from them. We kept all of the misprints, and now use them as learning tools when showing others where we started, and where we are now. We are not done learning. We have only just begun a journey, for which we do not know the end. It is both frightening and exhilarating.

Deana Brown is an Assistant Professor and Librarian in the Reference and Instruction unit at Boise State University. She liaises with the Philosophy, Psychology, and Sociology departments, and is active in working groups investigating user experience, space needs, and emerging technologies. Areas of interest include breaking down physical and mental barriers to access, developing instruction tools that effectively incorporate technology, and discovering areas where art and design intersect with librarianship.

Amy Vecchione is an Associate Professor and Head of the Digital Access Unit at Albertsons Library, Boise State University. As a leader she cultivates team work, develop user centered services using user experience principles, encourages experimentation, has a strong customer service ethic, believes in seamless access to resources, and constantly strives to make libraries they best place they can be using assessment of user behavior.