Setting Up a Makerspace: Why & How

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Association for Academic Health Sciences Libraries Meeting - Education Program, Baltimore, MD. Nov. 6, 2015.
HS/HSL Innovation Space Opened in April 2015.

It took almost a year of investigation and planning.
Makerbot Replicator 2X

Transform your idea into a physical object with 3D printing! Bring a .STL file with you. Replicator 2X offers two extruders. You can use ABS or dissolvable filament.

Afinia H480 3D Printer

The Afinia H480 is a small but reliable 3D printer. It has one extruder and supports the PLA filament.

Tutorials from Lynda.com

Great learning resource that offers 2,500 video tutorials by experts. Topics range from 3D modeling to computer programming. Learn how to operate a 3D printer, how to build a 3D model in Tinkercad or Blender, and how to program in Python or Ruby. (Available on-site only at the Innovation Space.)

NextEngine 3D Laser Scanner

Create high fidelity 3D models of physical objects with our NextEngine 3D scanner and software.

Handheld 3D Scanner

Try 3D scanning with an object of your choice! You can scan an object as small as a book or as big as a person. Yes, you can save the resulting 3D model and 3D print it!

DNA Model

Come play with the human DNA model. Assemble and disassemble while learning about the DNA structure! Check out the assembly instruction.
innovation space

1. DNA Molecular Model: Geneticists, please make sure there aren’t too many mutations
2. Lynda.com Dedicated PC: Find a tutorial for just about everything in the space
3. Afinia Printing Station: This 3D printer has a dedicated workstation to queue print jobs
4. Large Screen Monitor: For training, demonstrations, and pretty slideshows
5. Assortment of Filaments: A wide array of material options are kept on hand
6. Makerbot Replicator 2X: Capable of larger models that require finer detail and higher speed
7. Broadcast Camera: Keep an eye on your print job from the web and know when it’s done
8. 3D Sense Scanner: Capture actual objects (or people) and translate them into editable 3D models
9. Molecular Modeling Kits: Help visualize bonding chains and chemical processes

Information & reservation: http://cal.hshsl.umd.edu/booking/ispace
Why Did We Want a Makerspace for a Health Sciences Library?

- The significant impact of the Maker Movement and 3D printing technology on health sciences research and practice.
- The Maker Movement and 3D printing technology catalyze innovation and promote entrepreneurship by emphasizing ‘making’ over ‘consuming’ and facilitate experiential learning and rapid prototyping.
- Library makerspaces are often the only facility with the 3D printing/scanning capability that offers open access to all.
- Applications in many disciplines in health sciences.

http://guides.hshsl.umaryland.edu/c.php?g=163717&p=1075336
Common Questions - Logistics

• Because launching a makerspace is still new to librarians.
• Where to start?
  – What to purchase
  – How to set up the space
  – How to train staff
• How to operate & support user needs?
  – Policies
  – Workflow
  – Services, workshops, and promotion
Common Obstacle - Striking a Balance

• How to support and advance a new form of learning in health sciences vs. How to ensure that the library’s investment is relevant and justifiable to the campus community with the reality of a tight operating budget and many competing priorities.

• What’s cool vs. What makes sense
Planning & Implementation

- Apr. 2014: Task Force convened
- Nov. 2014: Equipment purchased
- Nov. 2014: Getting used to 3D printing and 3D modeling
- Dec. 2014-Jan. 2015: Staff training
- Feb.-Mar. 2015: Implementation details including Location, Space preparation, Policy, Web development, Signage, LibGuide, LibCal, Orientation design and orienter training, Pricing scheme, Payment and Pickup workflows, Promotion, Naming contest, and more.
- Apr. 21, 2015: The Innovation Space Launch
- Nov. 6, 2015: The Innovation Space Expansion Completed
Task Force White Paper

• Download at http://archive.hshsl.umaryland.edu/handle/10713/4634

• Covers a broad ground:
  – What exactly a makerspace is.
  – Whether it is relevant to UMB and HS/HSL.
  – What it would take to create one at HS/HSL.
  – What kind of service it will provide.
  – How it can be managed by the existing staff.
  – How it can be promoted to the campus.
  – Details such as equipment, location, policy, service model, and staffing
  – Cost and the funding model
  – Environmental Scan & Recommendation
Use Cases So Far

- The first experience of a makerspace & 3d printer in action to users. Over 30 individual orientations and reservations made. Lots of questions from passers-by and visitors.
  - Included in a course in the Dept. of Physical Therapy & the Informatics fellowship program.
  - Two workshops offered every week.
- Custom parts for lab equipment
- 3D printed denture model
- CAT Scan images as stackable 3d models as a teaching tool
- Anatomical model for research
- Buttons for a conference
## Guide Tracking - Total Views

### 3D Printing and 3D Scanning at t...

![Graph showing views over time with peak views in May 2015 and subsequent decrease.]

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### Guide Tracking - Total Views

### 3D Modeling Basics Using Tinkerc... by Brian Zelip

![Graph showing views over time with initial peak in May 2015 followed by decline.]

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Lessons Learned

• HS/HSL perceived to be highly innovative on campus.
• Technologies are still new to many.
• A relatively small user base that needs to be expanded.
• New technology and equipment still require users to develop their ideas and spend time on working out those ideas. Success depends on users as well as libraries.
More details

• “Making a Makerspace Happen: A discussion of the current practices in library makerspaces and experimentation at University of Maryland, Baltimore” (Given at ALA Annual Conference, San Francisco, CA., June 2015.)

• Slides at [http://www.slideshare.net/bohyunkim/making-a-makerspace-happen](http://www.slideshare.net/bohyunkim/making-a-makerspace-happen)
Questions?

- Twitter: @bohyunkim
- Blog: http://bohyunkim.net/blog
- Slideshare: http://slideshare.net/bohyunkim

Thank you!