

Minutes of the LMIS Committee for September 22, 2017

Committee Members Present: Sam Berling, Jane Carlin, Ann Gleason, Wade Hands, Sue Hannaford, David Latimer, Janet Marcavage, Lisa Wood.

Jada Pelger, librarian/technician, and student employee/technician Max Assael were also in attendance.

LMIS Committee chair, Sue Hannaford, called the meeting to order at 1:00 pm in the Maker Space in the library. The minutes from 9-8-17 were approved with one small change in language. Hannaford shared that after minutes were approved, "draft" should be removed, and they should be sent to facultycoms@pugetsound.edu.

Carlin introduced Jada Pelger, librarian, and Max Assael, student employee, who have been instrumental in getting the Maker Space going. Carlin provided a document containing an update on the Maker Space (see appendix A). She shared that open forums led to the development of a Maker Space; these were led by professors Lynette Claire, Siddharth Ramakrishnan, and Michael Johnson. Claire visited many maker spaces in the area. Ramakrishnan wrote a successful National Sciences Foundation grant to obtain equipment. The laser cutter is in the Art and Art History Dept. There is a 3-D printer in the Biology Dept. and other equipment here in the maker space in the library.

The Maker Space was funded through end-of-year funding, including the physical construction of the space adjacent to Technology Services. The construction and acquiring of equipment and supplies happened over the summer. Sherry Mondou asked Carlin to put together an advisory committee which met over the summer. The Maker Space is in its "infant stage", Carlin reported, and hopes that it will be in its "toddler stage" by the open house on Oct. 20th. Currently a Budget Task Force Proposal is being put together. Carlin presented to the LMIS so that members of the committee could make some recommendations. There were no questions from committee members regarding the establishment of the Maker Space.

Carlin shared that the vision for the Maker Space will develop. Initially, the vision is to offer high tech, low tech, and no tech experiences. The Maker Space contains materials and equipment including two 3D printers, a 3D scanner, a sewing machine, soldering tools, fabric, and paper. A letterpress will also be moved into the space. This can be a drop-in space when a technician is here. The technician can walk visitors through steps on using equipment. There will be some workshops on soldering and a student needlework group.

Carlin shared that there are many maker spaces in K-12 schools with an emphasis on robotics. There is a wish to meet the demands of students with these prior experiences. With the proximity of other TS spaces down the hall, visitors can flow from one space to the other and make ideas happen. Gleason shared that in the Tech Center down the hall, there is a pedagogical space with

360 cameras and other equipment available. Students have left notes stating their interest in learning how to use the equipment and make things in the Maker Space.

Carlin shared an example of use with the Doug Edwards Collection. Students can scan pieces of pottery, convert it, and print replicas. Additionally, an honors class is working with conductive thread technology to create wearables. This class can aid in the direction of the Maker Space. Next week some students are also designing decals for mugs.

Pelger reported that she is meeting with Maker Space employees to ask about how the lab is working and what questions students are asking. She is also encouraging people to work with new materials.

Carlin shared that the maker space at UW-Bothell, one of the regional maker spaces visited, is curriculum-driven. Students are using it to develop projects. At Puget Sound, there are goals related to curriculum, but the Maker Space will also be a drop-in space to create. Assael reported that lots of people have come by the Maker Space and are excited and want to learn about what is here. He anticipates the Maker Space being popular. Carlin shared that she is excited the facility is going, but is concerned about upkeep and maintenance. A dedicated staff is need for it to work well. Some student employees have been trained.

Carlin shared that a juvenile detention center website has projects that it has undertaken, including a chess set. The Puget Sound Women's League has been contacted to come up with a competition to get people interested. Alyce De Marais is looking at safety protocol. Eli Gandour-Rood is making a library online guide that will list equipment, hours, etc.

Carlin brought up the question of long-term sustainability. There has been \$10,000 in start-up funds. The Maker Bot (3D printer) alone cost \$4000. Furniture was reused from other parts of the library. The sewing machines were donated from student groups.

Hannaford shared that staffing seems like the biggest issue for the Maker Space. Initially to get things started, Carlin asked staff and students who was interested. Staff needs have not been figured out. Right now Pelger and students employees work in the lab part-time.

Wood brought up the experiential learning potential of translating 2D to 3D and asking what the meaning of having a space like this is. Intellectually thinking in three dimensions can be a metaphor, she shared. Carlin responded that Justin Sukiennik in the Math Department asked about using the Maker Space to make Mobius strips. So far, staff members do not have the knowledge to do this. In Art, Michael Johnson has done great work with the laser printer. Wood mentioned that team teaching could be involved in the learning process and could be a grant focus. Metaphorically and practically, the space can be used to cause students to think differently. It can also cause professors to learn more about teaching and how work here can be translated to other areas. Carlin shared that Ramakrishnan still has some funds for a workshop.

Hannaford asked if the Maker Space is part of the collections. Carlin replied that libraries are evolving to be spaces of learning and making, but not necessarily fabrication, which is why the laser cutter is in the sculpture building, not in the Maker Space. Gleason shared that students come to the library to study and this is another space in the library to construct knowledge. Carlin shared that students are working on digital timelines which contributes to how we preserve knowledge. This can be an area that reaches all of the community. A record will be kept of who comes into the Maker Space.

Wood shared that she has students do visual representation of theory which is an entry point for research. Her daughter created an interactive thesis project at Reed which allowed others to come into her mind. Thinking can be more dimensional than outlining. A 3D model also allows students to share what they've learned. Gleason shared that students can construct, rather than regurgitate knowledge. There was a pipe cleaner project in the library which generated ideas, as well as a project with legos during the Tech Services retreat.

Carlin asked what was the best way to reach out to faculty. Wood replied that a university club party could happen here. Latimer mentioned that a student club could work with the space and maintain it. Carlin shared that at Bothell, students are determining what the Maker Space can be. Berling offered that the Maker Space can reach out to him as a representative of ASUPS. Marcavage shared that it would be quite difficult to keep the lab clean, maintain equipment, and oversee safety without dedicated staff.

The meeting was adjourned at 1:52PM.

Respectfully submitted, Janet Marcavage

Appendix A:

Makerspace@Collins
An update for the LMIS Committee
September 22, 2017

Background: Several faculty held a series of conversations about the establishment of a Makerspace on campus. At the end of last fiscal year, funding was approved for the creation of a Makerspace in the lower level of Collins Library. Funding supported the construction of the space. In addition, \$10,000 in start-up funds were provided to support equipment and supplies. Details of the pilot project are provided below:

- The project is approved on the assumption, consistent with the proposal, that Jane (Carlin) will oversee and manage the operation of and collaboration associated with the space in the pilot year and that she will engage an advisory committee of faculty, technology services staff, and others as appropriate.
- One-time funding consists of the following:
 - \$60,000 for the construction budget, plus a \$2,000 construction contingency, to be managed by Bob.
 - \$10,000 for start-up supplies and equipment to be managed by Jane in consultation with the makerspace advisory committee. If the \$2,000 construction contingency is ultimately not needed, it will be added to the start-up fund.
- Any ongoing operating funding will need to come from existing budgets or a successful future budget request through the Budget Task Force process.
- It is our collective understanding that the creation of this space creates an opportunity for additional faculty grant proposals, which is great. (source: email correspondence from Sherry Mondou, April 28, 2017)

Current Advisory Committee:

- Jane Carlin, Library
- Lynette Claire, Business and Leadership
- Alyce DeMarais, Biology
- Eli Gandour-Rood, Library
- Ann Gleason, TS
- Michael Johnson, Art
- Sunil Kukreja, Academic Affairs
- Jada Pelger, Library
- Siddharth Ramakrishnan, Neuroscience
- Lori Ricigliano, Library
- Hilary Robbeloth, Library

What is the Makerspace? It is an *open collaborative space* for making, learning, exploring and sharing that has high-tech to no-tech tools to foster creativity and experimentation. The space is for all makers (novice and experienced), and includes equipment such as 3D printers, laser cutters, soldering irons and sewing machines.

Why Now? Our society is rapidly changing and the Makerspace education movement reinforces that we learn by doing, experimenting and problem solving. "Making" provides opportunities to experiment with technology, learn a new skill, discover creativity, tinker and have fun.

How does this enhance the Puget Sound Experience? Students can learn valuable lifelong learning skills, but also develop new ways of exploring ideas, collecting research and prototyping. For example, using a 3D scanner students could scan an artifact and then use the 3D printer to create a model to study in class. Students in Biology classes can print bone fragments and shells. Students in art can use the laser cutter to create works of art.

Why the Library? The Library is centrally located on campus and open for extended hours. The space in the lower level is adjacent to the Tech Center and the recently opened Development Studio, providing opportunity for enhanced collaboration and synergy. Library and TS staff have experience in implementing new services.

What Next?

- We are currently training staff and students on equipment: 3D printers, paper cutter, laser cutter, soldering irons, sewing/fabric, Arduinos, and 3D scanning.
- We have three students working on independent projects through the activity credit course, Humanities 399, designed to introduce digital humanities/library research.
- Our goal is to have open drop-in hours to learn and make as well as workshops to introduce Maker equipment and to offer space to classes and groups.

- We are working on a guide to Makerspace, details of scheduling and other policy issues.
- We are planning some faculty development workshops.
- We will continue to address long term sustainability associated with staffing, budget, and equipment maintenance.
- Open House on Friday October 20th – details forthcoming.
- The pilot year will provide a foundation for the future.