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Anthony Paganelli
Western Kentucky University

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Wandering the Web — Making Things of Makerspaces

by **Anthony Paganelli** (Part-time Librarian, Elizabethtown/Ft. Knox Campus, Western Kentucky University)

Column Editor: **Jack G. Montgomery** (Professor, Coordinator, Collection Services, Western Kentucky University Libraries) <jack.montgomery@wku.edu>

Column Editor's Note: *My first exposure to the idea of Makerspaces came several years ago when I received a call from our Educational Resources Librarian asking me to attend a meeting with some members of the education faculty. It was at that meeting that I learned about the new, yet old idea of collaborative learning environments where people come together to share materials and learn new skills while creating new products and services. Makerspace clearly has many facets and manifestations, so I sought out* ***Tony Paganelli*** *who was actually conducting Makerspace sessions at our satellite campus in Elizabethtown, Kentucky. Here is* ***Tony's*** *report. — **JM***

Makerspace

According to **Caitlin A. Bagley** of ALA Tech Source, "a makerspace is a place where people come together to create with technology." — From **Caitlin A. Bagley's** ALA Tech Source Blog, December 20, 2012. *http://www.alatechsource.org/blog/2012/12/what-is-a-makerspace-creativity-in-the-library.html.*

Makerspace — *http://makerspace.com/* — The Makerspace Website has information regarding the inception, designs, and concepts of makerspaces. As a supplement to the makerspace site, a blog has been created to help interested persons review makerspace ideas, discuss issues regarding makerspaces, and read posts about other makerspaces. Also, a directory has links to makerspace sites in the United States, as well as internationally. To fully grasp the makerspace idea, the creators include a Makerspace: Playbook that users may download for free. The playbook has terrific ideas about how to create a makerspace. The Website also has information about how to purchase makerspace items, which includes a makerspace workbench. The site is an excellent source for persons needing introductory ideas about creating a makerspace.

Hackerspace.org — *http://hackerspaces.org/wiki/* — The wiki page is designed and maintained by computer enthusiasts that share ideas and technology. The organization is an international association of computer technicians that provide information and events. According to the Website, "Hackerspaces are community-operated physical places, where people can meet and work on their projects." The Website also allows interested persons to post questions regarding technology and tell stories of innovative concepts. A unique regular event the organization provides is the Synchronous Hackathon, which people are given a challenge to perform regarding Internet usage or some other type of test. Once a month the community will collaborate about the challenge. The organizers have included numerous resources, which includes links to the theory of hackerspaces, list of people globally, and educational information.

FabLab@School — *https://tltl.stanford.edu/project/fablabschool* — The FabLab@School program is a global educational program that is attempting to provide middle and high school students with the technology to learn and create. The organization is a partnership with **Stanford University's Graduate School of Education** and the **Transformative Learning Technologies Lab**, the **Experimentarium** in Moscow, the **DSIL** in Bangkok, and **Bourn Idea Lab** in the **Castilleja School** located in Palo Alto, CA. The group is establishing a system to educate students in the STEM initiative concept. According to the Webpage, the program is a "low-cost digital spaces where you can 'make almost anything,' aimed at supporting project-based student-centered learning." The Webpage includes resources to principal publications, a video summary, and video examples.

K-12 Fab Labs and Makerspaces — *https://groups.google.com/forum/#!forum/k-12-fablabs* — The creators of the **Google Group** provide people with a forum to assist K-12 teachers and administrators locate makerspaces or fab labs near their location. Interestingly, the Webpage is vendor free, which also eliminates advertising in the community of makerspace participants and organizers. Primarily, the Webpage is used to share unique makerspace ideas and locate makerspace organizations near the respective educational institution. Throughout the threads of the discussion forum, links to Curriculum, Resources, and Shop Talk allow the users to reference specific topics. Resources are another significant factor of the **Google Group** forum. The Resources link to important information for gathering materials for a makerspace, project ideas, professional development, competitions, and grant opportunities.

Make it @ Your Library — *http://makeitatyourlibrary.org/* — The **Make It @ Your Library** organization was developed and funded in coordination with **Illinois Libraries Explore, Apply and Discover (ILEAD USA)** in collaboration with **ALA** and powered by Instructables. Through securing federal funding by the IMLS, the organization has created a Website that has numerous makerspace ideas, a blog for further discussions, and other information for using creativity in libraries and schools. The resource page is extremely beneficial for libraries or institutions interested in creating a makerspace idea. The resource page has startup ideas for small to expensive budgets, as well as links to similar makerspace businesses.

Make Magazine — *http://makezine.com/* — The Make Magazine has several categories for persons interested in learning and starting a makerspace program. A significant project of the organization is the annual Maker Faire, which unites do-it-yourself enthusiasts from across the world to demonstrate the newest trends in makerspace concepts. The site has ideas for makerspace projects, blogs, and variety of genres, list of information for makerspace in education, and a database of archived issues of the magazine. The source is an excellent beginning for studying and researching makerspaces.

MakerBridge — *http://makerbridge.si.umich.edu/* — Created by **Sharona Ginsberg** who is a member of the Instructional Support Service at the **University of Michigan's School of Information**, she and several interested people designed a site to help connect makerspace communities. The mission of the organization is to provide resources to the different genres and skill levels of makers. According to a statement on the site, "Everyone is welcome, regardless of affiliation, geographic location, or level of knowledge." An excellent aspect of the site is the "Review Tools" section, which provides information for makerspace tools that range from arts and crafts tools to video and audio software programs. Another feature is the "Blog" and "Forum" sections that help bridge the distance between makerspace communities through discussion and online assistance. The site encourages people to register or follow through Twitter to participate and receive makerspace information.

Adafruit Industries — *http://www.adafruit.com/* — The New York City based maker supplier founded by **MIT** graduate **Limor "Ladyada" Fried** provides a large variety of DIY kits and tools. Along with the founder's insight to technology, the company has a support staff with engineers and technical experts to help customers with any issue. On the Website, people can also participate in the blog and chat sections, which would greatly help those starting a technology makerspace. Another fantastic feature of the company's Website is the tutorial section. The tutorials have several video tutorials that cover a wide range of DIY tech projects, which includes neo pixel basketball hoop, solar charging purse, and

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a GPS dog collar. The company also holds a weekly video show called "Ask an Engineer," which allows the founder to discuss current technology. Another weekly show is the "Show & Tell" that gives viewers and users an opportunity to showcase their DIY projects. Furthermore, the Website offers a "Product Demo" section for new products.

Sparkfun — *https://www.sparkfun.com/* — The electronic retailer has supplies for all types of makerspace projects that include a robotic kit and GPS components. The company is most noted for DIY solar panel charging kits. However, the company has numerous other makerspace projects for people and educators. The Website also includes tutorials and videos to help interested persons begin new and innovated makerspaces. Furthermore, people located near a **Sparkfun** store will have the opportunity to participate in the store's various classes. A few of the classes include robotics, microcontrollers for educators, and soldering courses. The organization has several more features within the Website that are significant in obtaining materials or getting some helpful tips on establishing a makerspace.

Brown Dog Gadgets — *http://www.browndoggadgets.com/* — This organization supplies the typical electronic DIY person and those planning a lesson for students. The company is most noted for DIY solar panel charging kits. However, the company has numerous other kits and materials for a terrific DIY project. Some great education kits include the mini wind turbine kit, solar bug kit, and world's smallest solar car. While the company primarily focuses on solar and wind technology, the company has a variety of other products that will be an excellent choice for a class or electronic enthusiast to enjoy.

Made With Code — *https://www.madewithcode.com/* — The **Google Company** invested $50 million to encourage girls to enter the field of engineer and computer science. The initiative was implemented because the company had 17% female computer tech employees, which the company anticipates a demand for computer engineers will increase drastically by 2020. To provide basic information and coding practices, the company designed the Made with Code Website, which provides users the opportunity to learn the basic principles of coding. Furthermore, the site has significant coding resources for participants to utilize various coding techniques that range from simple avatar manipulations to composing music. In addition, users can participate in local coding events and join numerous organizations that promote coding. Another feature the site offers is resources for parents and teachers that may need online assistances.

Edutopia.org — *http://www.edutopia.org/* — The **George Lucas** sponsored organization promotes the concept of open-ended questions, creative thinking, and several concepts to help educators provide an innovative tool for teaching their students. The organization's Website has numerous resources for various teaching tools and projects. The Maker Education section also provides users with resources and ideas for teaching. The Maker Education has a discussion forum, videos, and a browsing section that has several creative ideas for establishing a makerspace project. The organization also provides numerous resources for various educational topics, including a student engagement, game-based learning, common core, curriculum planning, and a classroom management section.

Tinker Studio — *http://tinkering.exploratorium.edu/* — The **Art of Tinkering Exploratorium** is located in San Francisco. The organization based the studio "on a constructionist theory of learning which asserts that knowledge is not simply transmitted from teacher to learner, but actively constructed by the mind of the learner." The **Tinker Studio** has been in operation since 2000 and has introduced numerous creations and innovations to aid the community. The Website has a terrific blog that displays the organization's work. Also, a section called, "Tinkers," which describes the various project presenters during the **Tinker Studios'** ongoing projects.

Artisan's Asylum — *http://artisansasylum.com/* — Located in Somerville, Massachusetts, the non-profit organization provides tools, space, and materials for the community to create and be innovative. The organization's Website has great resources for its members that include a mailing list, RSS Feed, and a community wiki page. A nice feature for members is the calendar of events that has a list of daily events categorized by the time of the event. Under the "Facilities and Equipment" section, the organization has an extensive intentions of equipment for the various programs offered such as jewelry and lamp working shop, electronics, machine shop, and screen printing shop.

Bergen Makerspace — *http://bergenmakerspace.bergen.org/index.php/about-us* — The New Jersey organization has a partnership with **Bergen County Technical Schools** and **Bergen Community College**. The mission of the organization is to become a model of what can be achieved when education institutions come together to provide access to tools, equipment, and instruction for the betterment of the community. The Bergern's Website has sections for News, Technology, Projects, and Resources under the resources section, a list of equipment and materials that also includes links to the items and the retail store's Website. The Website also has project ideas, which vary from robotics to airplane designs.

Open Education Database — *http://oedb.org/open/* — The Open Education Database has a page that lists important resources for makerspaces. The page was written by **Ellyssa Kroski** who compiled articles and blog posts called "A Librarian's Guide to Makerspaces," that have information regarding makerspaces for academic, public, and K-12 libraries. The sources are significant in giving background information on makerspaces and the impact makerspaces have on education and the communities.

Los Angles Makerspace — *http://www.lamakerspace.com/* — "The **Los Angeles Makerspace** is a non-profit organization committed to exploring new ideas in a creative, collaborative environment, always exploring the age-old idea of the community coming together to explore, create, invent, and learn." While the Website is primarily an announcement site, it does have events to other associations based on topic concepts. The organization has events that include Science, Technology, Engineering, and Mathematics (STEM) initiative programs, tinker expositions, an introduction for 3D printing, and a workshop for citizen science. The main mission of the organization is to provide events for all people to create, no matter age, race, or gender. The makerspace Website also provides concepts for organizing a formal financial association, which can be an asset in aiding future makerspace events.

New Jersey Makerspace Association — *http://njmakerspace.org/* — The association was created to connect all makerspace organizations in the state of New Jersey. "We hope to gather together the bright minds of the Garden State in order to help creators create and makers to make." The Website includes a blog and a discussion forum, as well as numerous resources for makerspaces. Furthermore, the association has sections devoted to education, public, and corporate makerspace organizations. In addition, the Website has an excellent resource for those interested in starting a makerspace, which provides information to obtain materials for the startup. In partnership with **Rutgers University**, the association offers further opportunities to experience and participate in the makerspace program.

Makerkids — *http://www.maker-kid.com/* — A New York based organization, which provides STEM initiative opportunities for schools in creative and innovative programs. The Website provides videos, photos, and information regarding the organization's projects that will be beneficial for educational institutions to supplement the STEM initiative. Interesting projects include hydroponic gardens, robotics, and propeller cars. The resource section of the Websites categorizes the projects by make, exploration, and description. A significant resource is a paradigm for establishing and creating apps for electronic devices. Numerous projects are also conveyed using tutorial videos. Through Makerfaires and other events, the organization has assisted several schools in the Bronx and Queens to promote makerspaces, as well as the STEM initiative.

Atlanta Makerspaces — *http://decaturmakers.org/* and *https://wiki.freesideatlanta.org/fs/Info* — The Atlanta area has two major makerspaces, the **Decatur Makers**, and the **Freeside Atlanta**. The **Decatur Maker** organization provides space for creative learning and designing. The Website provides opportunities to join and

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In Cataloging, if the book being replaced is an exact copy, Cataloging staff evaluates the existing bibliographic record and makes updates or enhancements to the existing record, or overlays an updated **OCLC** record as necessary, and then replaces the barcode in the item record with the barcode attached to the new book. This ensures that circulation history is retained. If we have been unable to replace a lost or damaged book with an exact copy, Cataloging staff catalogs the new book using our existing standards, but also moves the item record from the book being replaced onto the new book's holdings record in order to retain circulation history.

For books that are going to be discarded, we delete or suppress bibliographic records, and remove our holdings in **OCLC**.

Cataloging's procedures are slightly different based on whether the book being replaced is still checked out to a patron. In order for Circulation to retain necessary information for lost books that are still checked out to a patron account, there are some instances where existing record information is suppressed rather than replaced, in order to be evaluated at a later date.

The Results

For two years, we slowly and steadily eliminated the backlog. One problem encountered was that some collection managers did not review their books in a timely manner. We ended up setting a monthly deadline. Twice monthly notices were sent to the collection managers reminding them of the deadline. Some were very good at meeting the deadlines, some were not. In order to keep the process moving along, if monthly deadlines were not met, then the Acquisitions Librarian reviewed the books and made the decision.

After the backlog was eliminated, it was easy to incorporate the process for replacement into the daily workflow of the staff. There was still the problem of the collection managers not reviewing the books, even though the amount they needed to review each month was only a handful. I presented another option to them in order to speed up the wait time and make the workflow more efficient. Since the Processing Student was already doing the research on how many times the book had circulated, the collection managers agreed to a criteria that would automatically be applied to each book.

- If a book has at least ten circulations or is five years old or newer, then we automatically rebind, repair, or replace. Ditto for anything of any age that is part of a multi-volume set.
- If it's a textbook, it automatically goes for CMT review regardless of age or circs.

This project was deemed a great success, and the workflow for handling damaged books is very seamless. As of the date this article was submitted, there are only 40 damaged books awaiting replacement.

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donate. As a member, users will receive information regarding events and makerspace resources. The site also has a resource section that includes links to other makerspace organizations. The **Freeside Atlanta** is a non-profit organization that is operated by volunteers. According to the Website the organization is "a community of makers, tinkerers, engineers, programmers, artist, teachers, and lunatics." The wiki Webpage has links to events, resources, classes, calendars, blogs, and projects. Both organizations offer resources for creating, organizing, and establishing makerspaces and makerspace projects.