ILLUMINATING LEARNING COMMUNITIES THROUGH SCHOOL LIBRARIES AND MAKERSPACES

Creating, Constructing, Collaborating, Contributing

Buffy J. Hamilton
Texas Library Association Conference 2013
#txla13
Defining Makerspaces
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A PLACE WHERE PEOPLE LEARN TO USE TOOLS AND MATERIALS AND CAN DEVELOP CREATIVE PROJECTS
Defining Makerspaces

A PLACE WHERE PEOPLE LEARN TO USE TOOLS AND MATERIALS AND CAN DEVELOP CREATIVE PROJECTS CAN BE EMBEDDED INSIDE AN EXISTING ORGANIZATION OR STANDALONE ON ITS OWN

Source: http://makerspace.com/
Defining Makerspaces

A place where people learn to use tools and materials and can develop creative projects

Can be embedded inside an existing organization or standalone on its own

Adaptable—can be shaped by educational goals as well as individuals’ creative interests

Source: http://makerspace.com/
Defining Makerspace

Collaborative learning environments where people come together to share materials and learn new skills.

Not necessarily born out of a specific set of materials or spaces, but rather a mindset of community partnership, collaboration, and creation.

People can create content as well as consume it in this incubator for ideas and ventures.

WHY LIBRARIES AND MAKERSpaces?
Foster play and exploration

Support opportunities for learning

Nurture peer to peer learning

Work with community members as *true* partners

Develop a culture of creating

Why Libraries and Makerspaces?

Inquiry and questioning

Problem solving

Networked/social learning and construction of knowledge

3D printing and creating

Hackathons

Writing salons and writing communities

Crafting

Digital production of content

Mechanical building and tinkering

Gardening and growing

Source:  http://metro.org/articles/from-stacks-to-hacks-makerspaces-and-librarybox//
Makerspace Learning: STEAM

Science

Technology

Engineering

Arts

Math

Source: http://metro.org/articles/from-stacks-to-hacks-makerspaces-and-librarybox//
Makerspace Configurations

Static/Fixed Space

Mobile/Pop Up Learning Spaces/Community Embedded

Source: http://metro.org/articles/from-stacks-to-hacks-makerspaces-and-librarybox/
World Maker Faire New York
New York Hall of Science, Queens, NY
Sept. 29 & 30, 2012

Did you miss Maker Faire Bay Area 2012?
Check out the highlights, video, and images!

WORLD MAKER FAIRE NEW YORK 2012 COUNTDOWN!
Maker Camp on Google+: 30 awesome projects in 30 days

Posted on July 15, 2012 by Michelle "Binka" Hrubinka

WHAT IS MAKERSPACE?
Modeled after hackerspaces, a makerspace is a place where young people have an opportunity to explore their own interests, learn to use tools and materials, and develop creative projects. It could be embedded inside an existing organization or standalone on its own. It could be a simple room in a building or an outbuilding that's closer to a shed. The key is that it can adapt to a wide variety of uses and can be shaped by educational purposes as well as the students' creative goals.
The National Writing Project and Mozilla's Maker Party 2013: Learn, Connect, Share Announced at President Obama's White House Science Fair

**Date:** April 22, 2013

**Summary:** At the White House Science Fair—celebrating the student winners of a broad range of science, technology, engineering and math (STEM) competitions from across the country—President Obama announced new steps as part of his Educate to Innovate campaign, an all-hands-on-deck effort to get more girls and boys inspired to excel in these key subjects. Included in this campaign will be the National Writing Project and Mozilla's Summer Campaign Maker Party 2013: Learn, Connect, Share.

**Excerpt from Article**

"Summer campaign to give many more students the ability to be "Makers": This summer, the Maker Education Initiative will launch the first-ever MakerCorps. These volunteers will give more young people the opportunity to design and build something that is personally meaningfully to them. In its first year, over 100 MakerCorps members—in 19 states and Washington D.C.—will work with 34 different partner organizations such as schools, libraries, and science centers. In addition, Mozilla and the National Writing Project will lead Maker Party 2013: Learn, Connect, Share, a summer long campaign where teachers, technologists and families across the country will join dozens of partner organizations including the NYC Department of Education, Intel, and DIY.org to help young people embrace the maker spirit and learn career building STEM skills. The campaign will launch on June 15 with a Hive Learning Popup, the first of over 1,000 summer learning
Welcome to the Maker Education Initiative!

The mission of the Maker Education Initiative is to create more opportunities for young people to make, and, by making, build confidence, foster creativity, and spark interest in science, technology, engineering, math, the arts—and learning as a whole. We want young people to join—and eventually lead—the growing Maker Movement.

We are launching the Maker Education Initiative at Maker Faire Bay Area (May 19-20, 2012). Our goal is to build on the excitement and inspiration of Maker Faire and explore working with partners in our community to promote more opportunities for children and teens to participate in making activities and develop their own projects as makers.

- Do you want to find out about maker activities in your area?
- Would you like to coach or teach young makers?
- Does your organization want to integrate making activities into your existing programs?
- Already making? Share your success stories with others, and join our list of maker programs.

Click here to sign up! to get involved and receive future announcements.
Get Your New “School Edition” of the Makerspace Playbook

By Michelle Hlubinka On February 26th, 2013 - Add Comment

We’ve posted the latest edition of our Makerspace Playbook on our site. We’ve revised it with some new spotlights from our pilot schools and complete lists of our Makerspace-in-a-Box. Plus a snazzier layout.

This is a living document and we welcome changes to it. For now the best way is to email contact@makerspace.com and/or post suggestions in the comments section here, below.

A Librarian’s Guide to Makerspaces: 16 Resources

March 12th, 2013

by Elyssa Kroski

Makerspaces, sometimes also referred to as hackerspaces, hackerspaces, and fablabs are creative, DIY spaces where people can gather to create, invent, and learn. In libraries they often have 3D printers, software, electronics, craft and hardware supplies and tools, and more. Here are some excellent resources for anyone thinking about setting up a makerspace in their organization.

Articles & Blog Posts

1. Libraries, Hackerspaces and E-waste: how libraries can be the hub of a young maker revolution
   "...there's another gang of information-literate people out there, a gang who are a natural ally of libraries and librarians: the maker movement. Clustered in co-operative workshops called "makerspaces" or "hack[erspaces]," makers build physical stuff. They make robots, flying drones, 3D printers (and 3D printed stuff), jewelry, tools, printing presses, clothes, medieval armor... Whatever takes their fancy. Making in the 21st century has moved out of the individual workshop and gone networked. Today's tinkerer work in vast, distributed communities where information sharing is the norm, where the ethics and practices of the free/open source software movement has gone physical. Such hackspaces play a prominent role in my own fiction (thanks, no doubt, to the nearby presence to the London Hackspace, which is directly over my own office in Hackney). In my new novel.,"

2. What Is a Makerspace? Creativity in the Library

Source: http://oedb.org/blogs/ilibrarian/2013/a-librarians-guide-to-makerspaces/
Talking Points: Museums, Libraries, and Makerspaces

By the Numbers

- In 2006, American students ranked 21st out of 30 in science literacy among students from developed countries, and 25th out of 30 in math literacy.
- In 2009, 4th graders showed no signs of progress for the first time in many years, and 8th graders tallied only modest evidence of progress.
- The $3.4 billion for STEM education investments in FY10 is less than 1% of the total annual funding for education in the U.S.

Hands-on activities at the 2011 Maker Faire at New York Hall of Science in Queens. Photo by Andrew Kelly.

What are makerspaces?
Makerspaces are part of a growing movement of hands-on, mentor-led learning environments to make and remake the physical and digital worlds. They foster experimentation, invention, creation, exploration, and STEM learning. The movement aligns with President Obama’s Educate to Innovate initiative and his call to “think about new and creative ways to engage young people in science and engineering [and]...encourage young people to create and build and invent—to be makers of things, not just consumers of things.” (Obama, 2009)

Museums and Libraries as Makerspaces

Source: http://www.imls.gov/assets/1/AssetManager/Makerspaces.pdf
A MAKERSPACE CULTURE SUPPORTS THE MISSION OF LIBRARIES TO ENABLE LIFELONG LEARNING AND TO SUPPORT KNOWLEDGE CREATION IN THEIR COMMUNITIES
Learning in a Participatory Culture: A Conversation About New Media and Education (Part Four)

February 12, 2010

Learning in a Participatory Culture About New Media

This is the third part of my interview with Convergencia, a Spanish-language website on literacies. This time we talk about YouTube, fan fiction and Facebook.

So far, we have been talking about the new and the old ones.

Almost never do schools think about the new at the same time. Some people may have the sense that American college students are in a new age of communicative environments, and educators in training were there for it. Teachers have developed networks. Teachers have developed the networks. Teachers have developed what they perceive as opposition.

PRINCIPLES OF SITES OF PARTICIPATORY CULTURE AND LEARNING

An occasional paper on digital media and learning

Confronting the Challenges of Participatory Culture: Media Education for the 21st Century

Henry Jenkins, Director of the Comparative Media Studies Program at the Massachusetts Institute of Technology

with

Katie Clinton
Ravi Purushotma
Alice J. Robison
Margaret Weigel
relatively low barriers to
ARTISTIC EXPRESSION
AND CIVIC ENGAGEMENT
Strong support for creating and sharing one’s creations with others

Photograph used with permission of Andy Plemmons
fluidity in the roles of

NOVICES AND

EXPERTS
MEMBERS FEEL A SENSE OF CONNECTEDNESS with one another

CC image via http://www.flickr.com/photos/buildingunity/303497031/sizes/l/in/faves-10557450@N04/
members believe their contributions matter
communities formed around...

PASSIONS
INTERESTS
WONDERINGS
NEEDS
CURIOSITY
PROBLEMS

CC image via http://www.flickr.com/photos/23882161@N03/3742006047/
communities formed around

ACADEMIC STANDARDS
Libraries Creating a Makerspace Culture of Learning

CONTENT CONSUMPTION AND CREATION IN AUTHENTIC CONTEXTS ACROSS MULTIPLE SUBJECTS AREAS AND STUDENT INTERESTS

PRACTICES OF PARTICIPATORY LEARNING AND PLAY

AFFINITY SPACES: FORMAL AND INFORMAL COMMUNITIES OF LEARNING

GUIDED INQUIRY, TINKERING, AND MESSY LEARNING
Legos + Literacy

Increased attention span

Memory Development

Logical mathematical thinking

Creativity

Problem solving

Scientific reasoning

Tactile and kinesthetic learning increase student understanding

Language and vocabulary skills
Children’s Services Lego® Club
Indiana Academic Standards, Math & Science
Kindergarten to Fifth Grade

The program will begin with a brief introduction to engineering principles followed by unguided building by the children. Once a child completes a project he/she will provide a short description of the object and explain how it was built. The program will touch on or reinforce some of the standards listed below.

Math
K.3.2 Identify, copy, and make simple patterns with numbers and shapes.
1.2.1 Show the meaning of addition (putting together, increasing) using objects.
1.2.2 Show the meaning of subtraction (taking away, comparing, finding the difference) using objects.
1.5 Students learn how to measure length, as well as how to compare, order, and describe other kinds of measurement.
2.4 Students identify and describe the attributes of common shapes in the plane and of common objects in space.
3.5 Students choose and use appropriate units and measurement tools for length.
4.4 Students show an understanding of plane and solid geometric objects and use this knowledge to show relationships and solve problems.
5.7 Students make decisions about how to approach problems and communicate ideas.

Science
K.3.1 Describe objects in terms of the materials they are made of.
K.5.1 Use shapes to describe different objects.
K.6 Students begin to understand how things are similar and how they differ. They look for ways to distinguish between different objects by observing.
1.2.6 Describe and compare objects in terms of number, shape, texture, color, and motion.
2.1.3 Describe, both in writing and verbally, objects as accurately as possible.

Standards Aligned
Studio You: Making Movies and Video Games

The Anime Club is growing into some kind of new creative time. If you haven’t voted for your favorite ideas please do that now! We’ll meet again next week and voting results will be posted soon.
Studio You: Making Movies and Video Games

Learn more: http://prairiecreeklibrary.blogspot.com/2012/10/studio-you.html
Possibilities: Sacramento Public Libraries iStreet Press

I Street Press
A Community Writing & Publishing Center

Welcome to I Street! Join Sacramento Public Library as we jump into the world of print-on-demand, self-publishing and writing/publishing classes. We hope that I Street will become the go-to destination for all things writing and publishing. Do you have a book inside? We can print it for you!

Learn
Whether you are a beginning writer or a seasoned professional, we have a class for you.

Publish
Sacramento Public Library presents the new I Street Press! We can print whatever book you can write.

Read
The Espresso Book Machine print from a database of over three million titles.
Possibilities: Sacramento Public Libraries iStreet Press

Homeless poet proud of newly printed copy of his works

By Carlos Alcalá
caleca@sacbee.com

Published: Sunday, Feb. 19, 2012 - 12:00 am | Page 1B
Last Modified: Sunday, Feb. 19, 2012 - 11:57 am

Mark Bell has a lot to say and has poured it into hundreds of handwritten pages of poetry, memoir and fictional anecdotes.

But he was nearly silent Saturday when he got his hands on a printed copy of his writings for the first time.

He turned it over in his hands and flipped through pages.

Mark Bell, seated, works at the Sacramento Public Library on Saturday to print his first book, "The Hobo Speaks." From left are Rick Castro, who first contacted Bell and helped facilitate the project; Maryellen Burns-Dabaghian, who is helping with editing, formatting and funding; Leo Dabaghian, also pitching in funds; and Larry Fox, who helped with formatting and graphic design.
Possibilities: Sacramento Public Libraries iStreet Press

Ideen | Prozess | Produkt

Makerspaces: School Library + Science Lab = The Learning Garden: Emerging Trends Planning Worksheet

Objective or Activity:

My objective is to use create a Makerspace at Newcomb Academy School in Long Beach, Ca. My goal is to utilize the School Library and Science Lab to aid in the development and collaborative participation to renovate the garden located on the campus. This school was temporarily relocated to another campus while their school is being rebuilt. the new campus had an existing garden, however, the area has been neglected and is in need of a major overhaul. The purpose of this group is to learn about being self-sustaining, help the environment, and donate food to those in need. By creating an after school program that is motivating, and interesting our Makerspace will be lead by adult mentors and students can receive alternate education credits for participating in an after-school garden club.

Evidence & Resources:


Source: http://community.tametheweb.com/socalshi/2012/10/29/makerspaces-school-libraries-emerging-trends-planning-worksheet/
3D Printers in the Library: Toward a Fablab in the Academic Library

Posted: July 17, 2012 | Author: Lisa Kurl and Tod Colegrove | Filed under: library, library as makerspace, library design, technology | Tags: 3D printing, makerspace | 10 Comments »

Collegrove and a student assembling an articulated model of a V8 engine. Photo by Nick Crowel

Considering adding a 3D printer to the array of technology your library offers to meet your members' needs?

The DeLaMare Science & Engineering Library at the University of Nevada, Reno, recently added two 3D printers, along with a 3D scanner and supporting software, to its collection. In the spirit of sharing the tremendous excitement involved in providing a 3D printer to our community, we hope our successful experience may be of use to others as you make the case for your own library. We’ll cover the opportunities libraries can embrace with the potential 3D printing brings, what exactly 3D printing is, how 3D printing, making, and fabrication enhances and perhaps changes

Possibilities: DeLaMare Science & Engineering Library at the University of Nevada, Reno

Source: http://acrl.ala.org/techconnect/?p=1403
Possibilities: DeLaMarre Science & Engineering Library at the University of Nevada, Reno
Possibilities: Fayetteville Free Library Fab Lab

CC image via http://www.flickr.com/photos/therontrowbridge/6672045725/sizes/l/in/set-72157628805853687/
PHOTOSHOP
PHOTOGRAPHY
GRAPHIC DESIGN
FASHION
HIGH TECH TEXTILES
WRITING
MUSIC AND VIDEO PRODUCTION

"I believe in ordinary acts of bravery, in the courage that drives one person to stand up for another."

- Dystopians manifesto, Divergent (via facebook)

LIFE IS TOO SHORT & UNPREDICTABLE NOT TO LIVE IT EXACTLY AS YOU PLEASE.

BE BRAVE

BE PATIENT

BE BORN BRAVE

BE MINDFUL

BE INSPIRED

BE LOVING

BE ADVENTUROUS
Possibilities: Library Makers @ Madison Public Library

Learn more: http://librarymakers.blogspot.com/search/label/CraftLab
Possibilities: Library Makers @ Madison Public Library

Learn more: http://librarymakers.blogspot.com/search/label/CraftLab
Always In Stitches at Abington Community Library

Source: http://www.libraryasincubatorproject.org/?p=8444
Dresses for young African girls. Local quilter and author Nancy Johnson-Srebro got the group interested in creating simple dresses, which will be sent to Kenya.

30+ quilt tops donated to Project DJ, an organization that distributes small quilts to children in hospitals.

Pillowcases donated to ConKerr Cancer, a group that distributes colorful cases to children undergoing treatment in a number of hospitals.

Source: http://www.libraryasincubatorproject.org/?p=8444
The Idea Box at Oak Park Library

new experiment in community participation and library programming that invites visitors to “explore, learn, and play.”

Source: http://boingboing.net/2012/10/08.idea-box-draws-community-to.html and http://www.libraryasincubatorproject.org/?p=5025
The Idea Box at Oak Park Library

Installations vary to reflect the diverse interests in our community. One installation may feature participatory art and culture; another may solicit opinions on an upcoming initiative or library service, or be hands-on, demonstrating new technology.

Source: [boingboing.net/2012/10/08/idea-box-draws-community-to.html](http://boingboing.net/2012/10/08/idea-box-draws-community-to.html) and [www.libraryasincubatorproject.org/?p=5025](http://www.libraryasincubatorproject.org/?p=5025)
“Other artists from the community have come in and wanted to participate. It has been a really interesting talking point with patrons.”

Source: http://boingboing.net/2012/10/08/idea-box-draws-community-to.html and http://www.libraryasincubatorproject.org/?p=5025
The Idea Box at Oak Park Library

If you could draw your whole world, what would be in it? Join us for an Idea Box of your own creation, April 3 – 30.

Source: [http://boingboing.net/2012/10/08/idea-box-draws-community-to.html](http://boingboing.net/2012/10/08/idea-box-draws-community-to.html) and [http://www.libraryasincubatorproject.org/?p=5025](http://www.libraryasincubatorproject.org/?p=5025)
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Source: http://boingboing.net/2012/10/08/idea-box-draws-community-to.html and http://www.libraryasincubatorproject.org/?p=5025
STEPS FOR SUCCESS: THINKING, PLANNING, DOING, ASSESSING
STEPS FOR SUCCESS:
THINKING, PLANNING, DOING, ASSESSING

• Have a meaningful context and purpose for learning connected to the library’s vision, mission, and strategic plan
• Identify community needs
• Creating and connecting are valuable parts of creating “collections” of learning experiences
• Re-envisioning and redefining the concept of learning
• Connect with community partners and community learning initiatives

Creating staff buy-in and creating a team of mentors who feel comfortable with their skill sets

Learning by doing, sharing, reflecting

Including tinkering and play as learning experiences for staff as well as an element of data reporting

Market/publicize makerspace opportunities for learning and events; create and build on community excitement and expertise

• Considerations for infrastructure/building needs: power, permits, supplies, tools, fundraising/grants/crowdsourcing, community experts
• Considerations for safety/liability
• Create forms and channels for safety waivers and volunteering opportunities
• Managing logistics of sound, noise, mess, crowds

• Formative and summative assessment
• Qualitative and quantitative data
• Enlist assistance of patrons and their stories to construct the ongoing narrative of library experience and stories of makerspace learning
Additional Tips

- KNOW YOUR SPACE
- Do a preview run
- Verify skill levels

Additional Tips

BE FLEXIBLE

Reach out for help

Doing brings doubters on board

Common Ingredients

Program, service, or learning medium based upon a community need; flexibility is an anchor.

Focus on people, community, creation, collaboration

Playful, varying entry points of access, active

Meaning making comes from transacting with information; experience as education
it's the EXPERIENCE Not THE OBJECT
thank you!
BUFFY.HAMILTON@GMAIL.COM
HTTP://THEUNQUIETLIBRARIAN.WORDPRESS.COM
HTTP://BUFFYJHAMilton.WORdPRESS.COM
TWITTER: @BUFFYJHAMilton
Recommended Resources

http://quartz.syr.edu/blog/?p=2538

http://blogs.kqed.org/mindshift/2013/02/want-to-start-a-makerspace-at-school-tips-to-get-started/

http://www.edutopia.org/blog/creating-makerspaces-in-schools-marybeth-hertz

(free archived webinar series from ALA TechSource!)

http://connectedlearning.tv/jeff-sturges-strengthening-communities-makerspaces