

Makerspaces and Digital Badging: New Avenues To Help Students Show What They Know

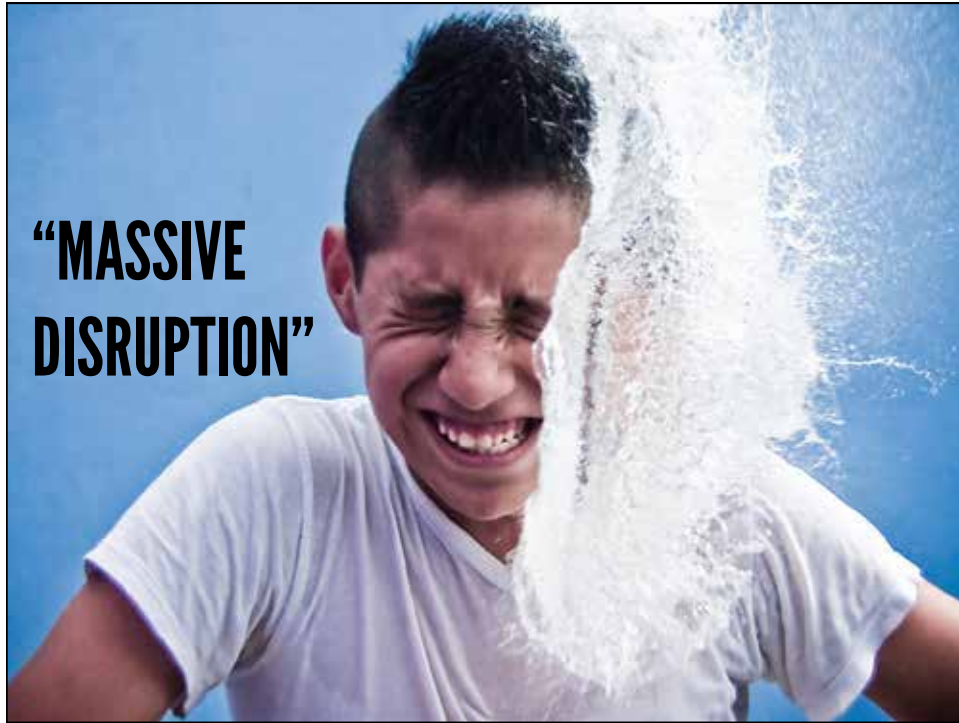
Kristin Fontichiaro, @activelearning
University of Michigan School of Information
Sunday, June 29, 2014 – 10:30am to 11:30am
Location: N252
Slides available tonight: <http://bit.ly/fontblog>

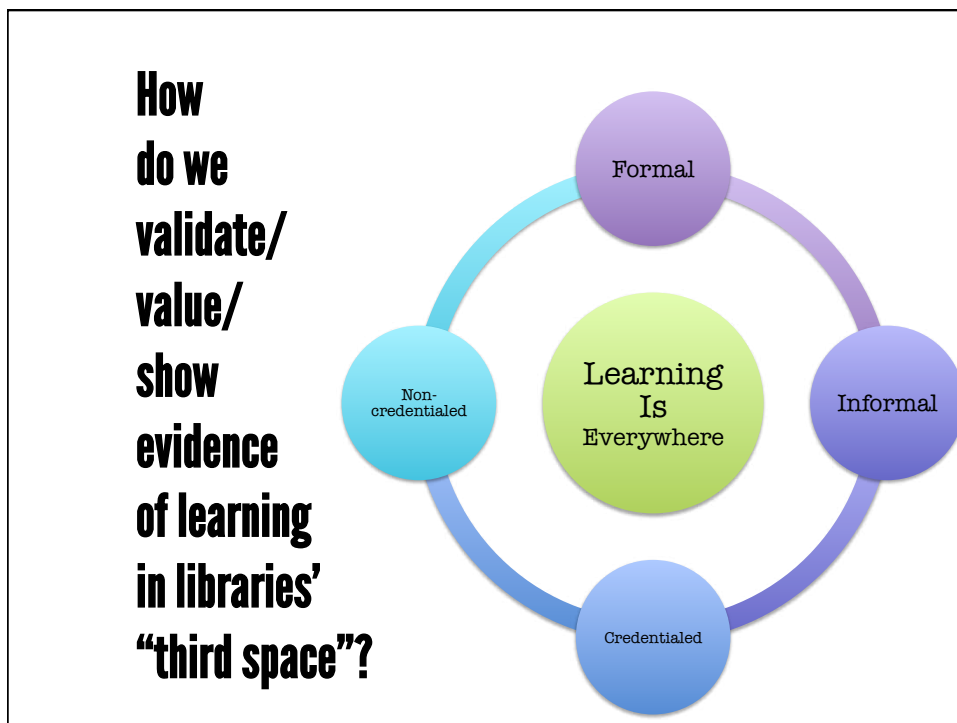
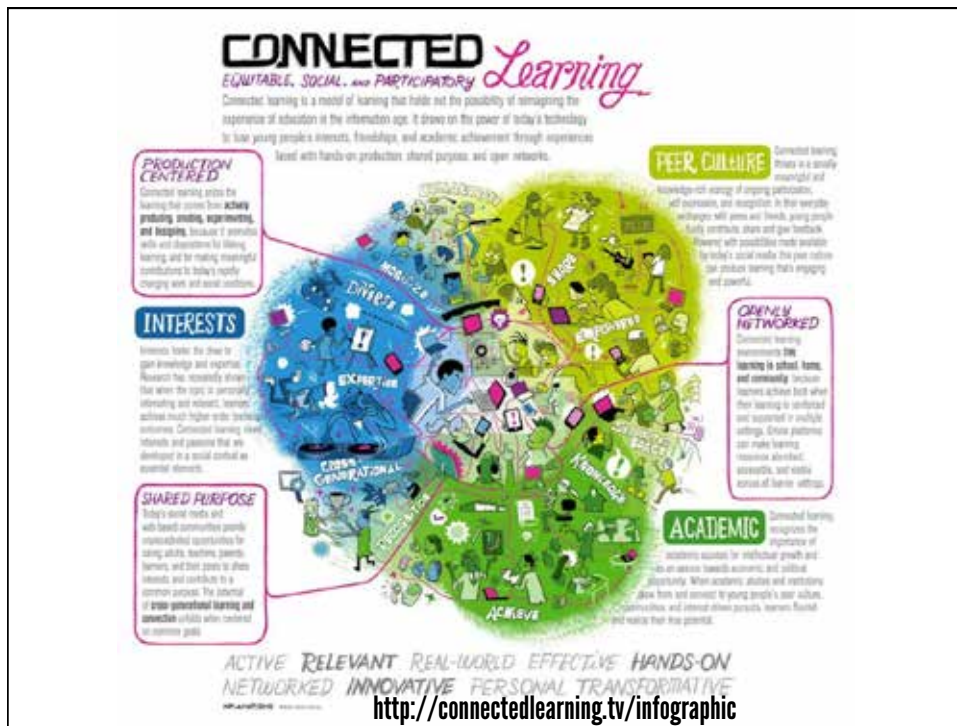
Abstract

There are many pathways to learning, and learning is happening everywhere: schools, libraries, clubs, community centers, homes, and religious organizations. A makerspace culture, one that emphasizes creation over memorization, open-source sharing over siloed knowledge, and process over product, gives new ways for students to explore concepts and show what they know. Coupled with makerspace culture is a movement to flexibly acknowledge growth: digital or open badges. In this session, we'll talk about budget-friendly school library makerspaces, strategies for promoting healthy makerspace culture, and validating growth via digital badges that go far beyond the sticker charts of the past.

Download today's slides: <http://bit.ly/fontblog>

@activelearning





DIGITAL BADGES

- **A badge is ...**
 - “a validated indicator of accomplishment, skill, quality or interest”
(<http://dmlcompetition.net/Competition/4/badges-about.php>)
 - A microcredential
 - A way to think differently about how we show what we know

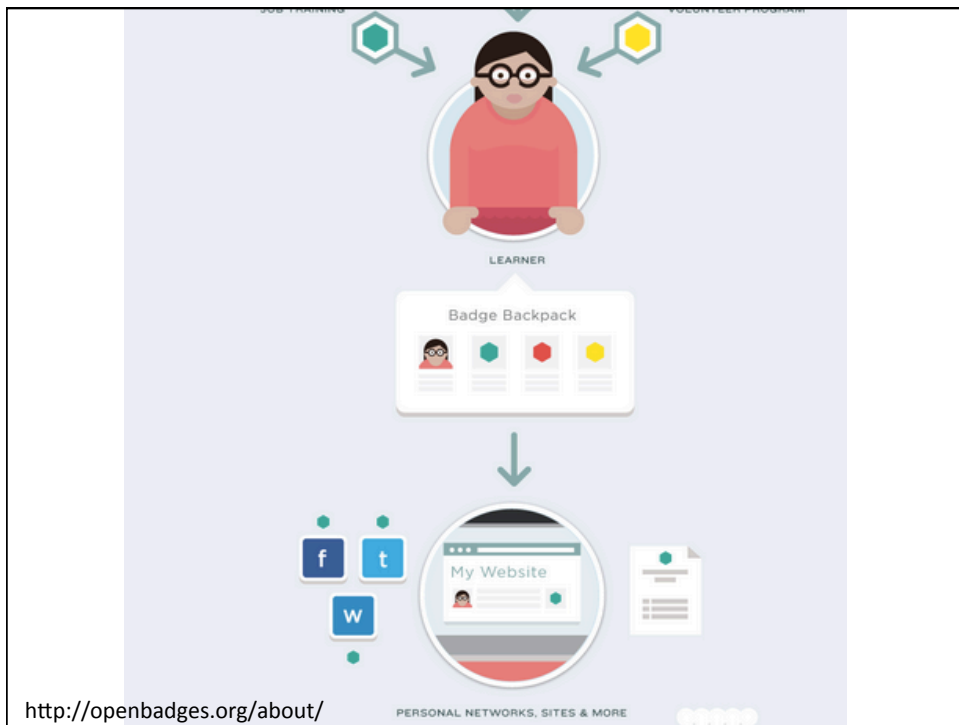
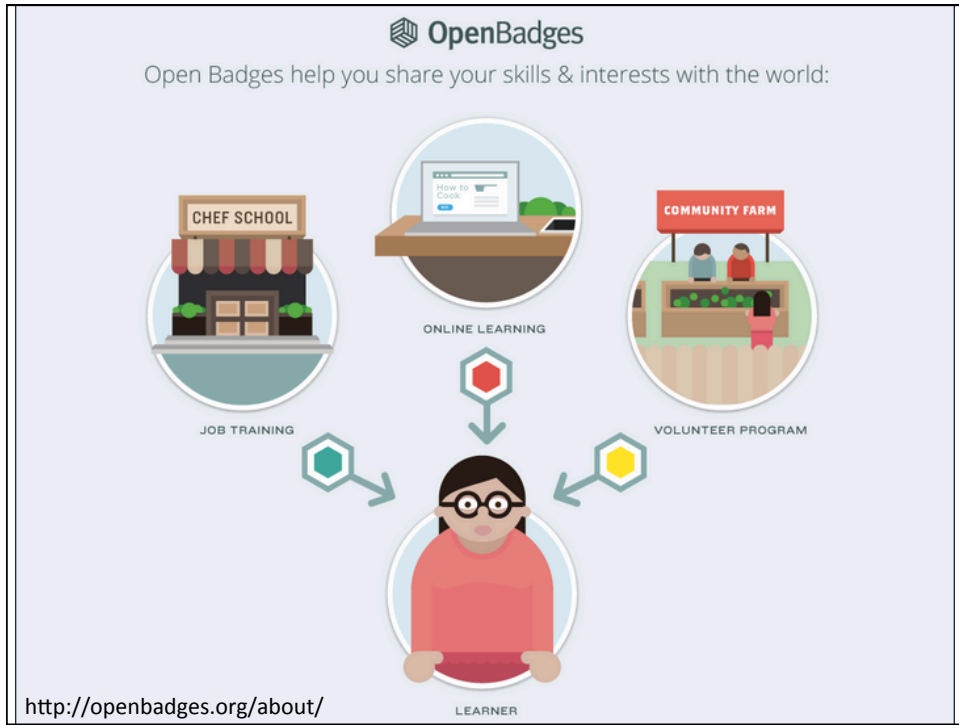
TRADITIONAL VS. BADGES

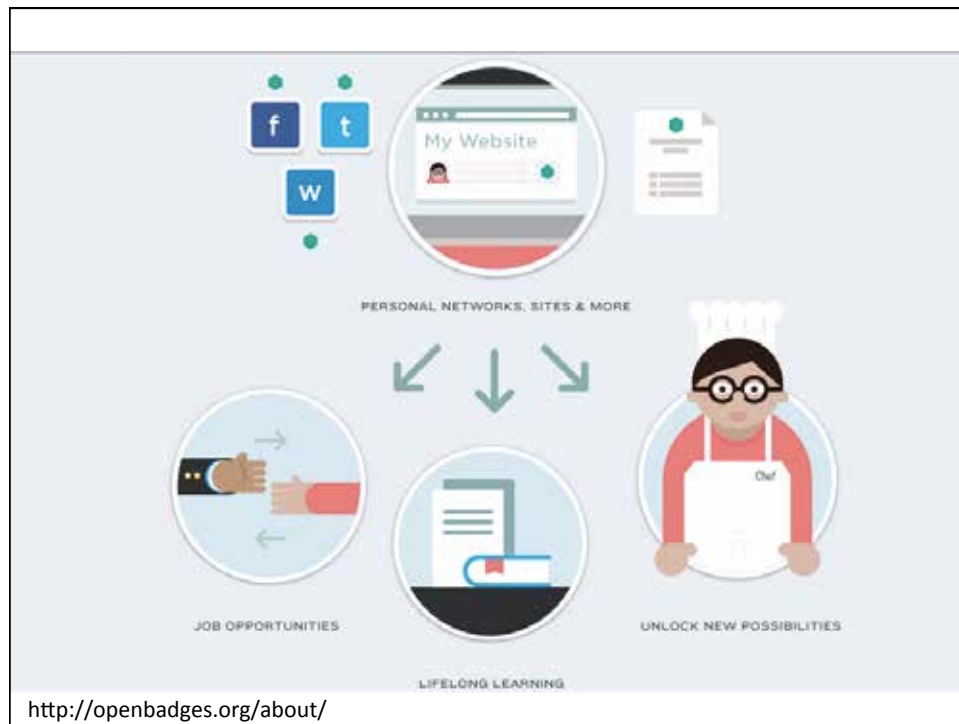
Schools and Universities

- Carnegie Credits
- Seat Hours
- Course Credits
- Codified Rules
- Accredited institutions

Badges

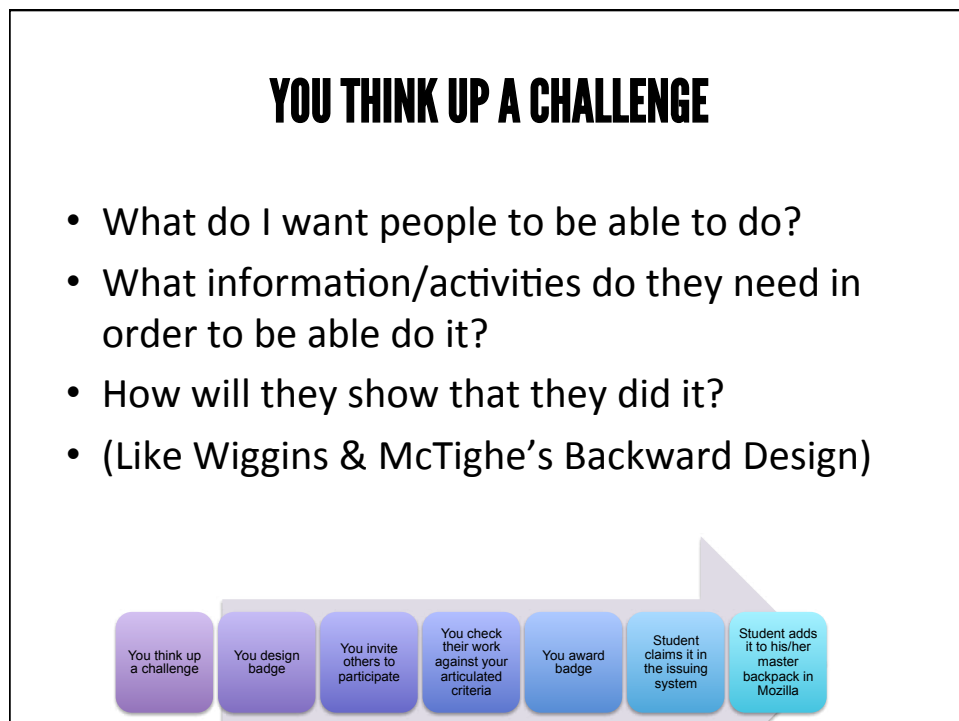
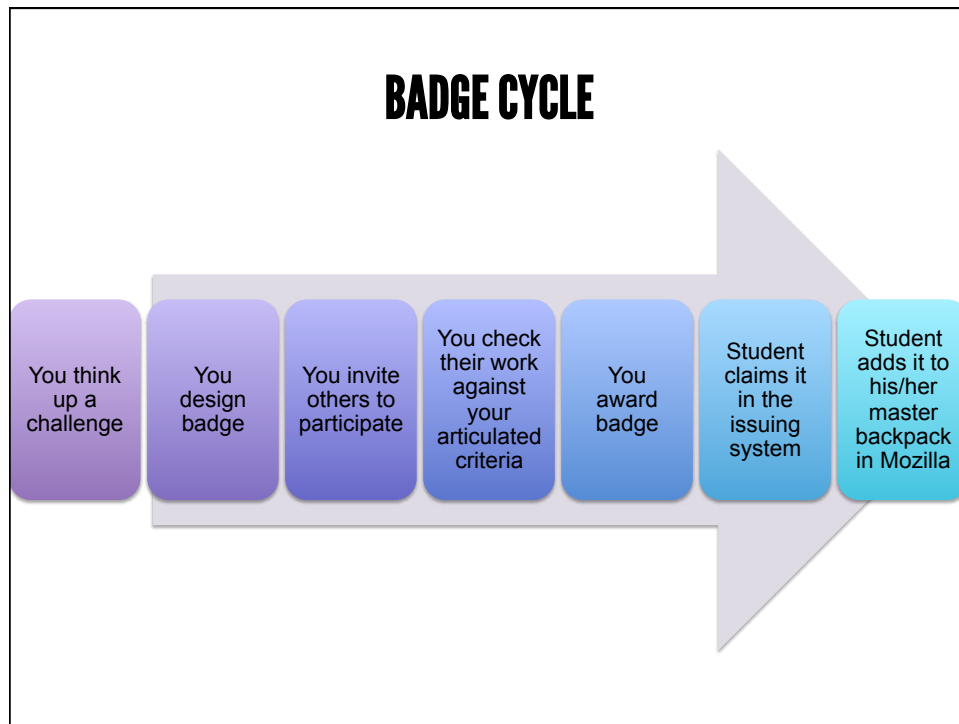
- Agnostic
- Anybody can issue
- No formal teacher certification or teacher formal education levels needed
- Do not represent a standard number of seat hours, work hours, or effort required





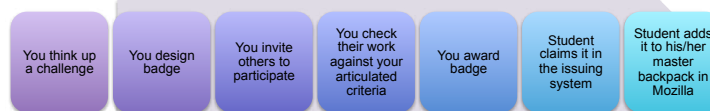
How (Why?) Could I Use Badging In My Job?

- As a parallel to formal grading systems
- To “micro-measure” student or teacher skills that would otherwise go unrecognized
- To build student or educator portfolios that showcase new skills
- Students +13yrs



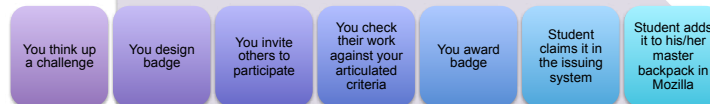
YOU DESIGN A BADGE

- Where will people redeem a badge?
- Where will they get the steps to follow?
- What evidence do they need to show
- How will they share that evidence with you?
- What will you use for your badge icon?



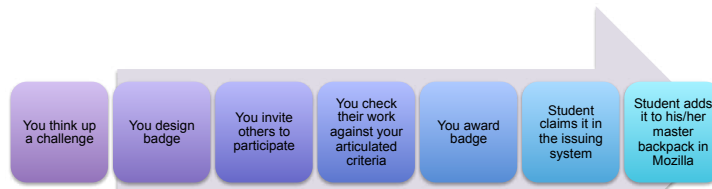
DESIGN EXAMPLE #1: ATTENDANCE ONLY (NO SHARED EVIDENCE OF LEARNING)

- The badge earner received this badge for attending the June 24, 2015, workshop on The Daily Five offered from 8-11am at Madeup ISD. Attendance was verified by event organizers. Details about this event are available at <http://madeupisd.com/daily5event>.



DESIGN EXAMPLE #2: STUDENT SHOWS EVIDENCE OF SKILL, VERIFIED VISUALLY

- This badge earner was able to assemble the LED light, Arduino, and code necessary to run the “Blink LED” sketch from <http://arduino.cc/en/Tutorial/Blink?from=Tutorial.BlinkingLED> . Evidence was observed visually by the course instructor. The badge earner earned this badge by attending the Madeup Town Mini Maker Faire on Thursday, June 12, 2015.



DESIGN EXAMPLE #3: STUDENT SHOWS EVIDENCE OF SKILL, VERIFIED WITH ONLINE EVIDENCE

- This student created an annotated bibliography of at least ten items. Each citation was correctly formatted according to MLA format, and annotations met the standards outlined at madeuplibrary.com/annotations . To view an uploaded version of the student’s work, please go to <http://madeupgoogledoc.com/abc> .
- *Student must have work online (be thoughtful about privacy) and then add her URL to the Gdoc/wiki/whatever.*

EVIDENCE, YOU SNEAKY THING

- Objectives need to be written very clearly and specifically
- Perhaps link to an external assignment sheet or rubric?
- Your authority is on the line if you grant a badge and someone later finds the recipient's skills underdeveloped
- Steps necessary for completion are clearly spelled out
- (In other words, evidence is hard. But it's also hard in real life. Good object lesson!)

POST YOUR CHALLENGE AT A BADGE CREATION SITE LIKE [HTTP://BADG.US](http://badg.us), [HTTP://MAKEWAV.ES](http://makewav.es), OR [HTTP://4ALLBADGES.COM](http://4allbadges.com) (NOT MOZILLA)

Create a badge

Title:

Short, descriptive title

Image: No file chosen

Upload an image to represent the badge

Description:

Longer description of the badge and its criteria

Tags:

A comma-separated list of tags

Unique: Should events of this badge be limited to one per person?

Nominations needed: Should this badge accept nominations from other users?

[Create badge](#)

Example badge:

The sn't a real badge, but it shows a few things you can do.

Title: Test Badge

To receive this it 2 words, or less.

Image:



This should be a square image, around 256x256 pixels. The system will automatically crop and resize images that fall outside these guidelines. Also, consider using simple artwork that shows achievement of a variety of skills and meeting objectives. Lots of small details and words are hard to see when the badge image is either small or far away.

Description: For having qualities like a test dog, but more badgerly.

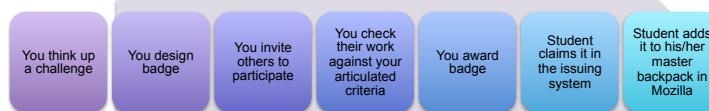
Use this to describe why someone should earn the badge. Explain the conditions and criteria a person would need to satisfy to receive this badge as an event.

Tags: [tests](#) [Admactives2012](#) [badgers](#)

Use tags to group your badge with others. These are like hashtags on Twitter. These are best used sparingly. Try not to enter more than 2-3 concise topics or keywords. Always offer one tag to help gather badges that will be offered by Admactives2012.

YOU INVITE OTHERS TO PARTICIPATE, THEN CHECK THE EVIDENCE, IF REQUIRED, AND AWARD THE BADGE

- Saw a video of their work
- Received a document
- Saw their work in person



OPTIONAL: OPENBADGES.ORG

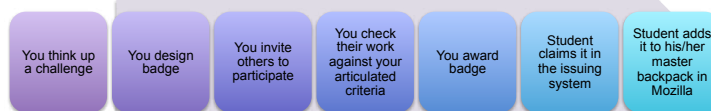
mozilla
OpenBadges Earn Issue Display Community Press Blog

Get recognition for skills you learn anywhere.

```
graph LR; A[You think up a challenge] --> B[You design badge]; B --> C[You invite others to participate]; C --> D[You check their work against your articulated criteria]; D --> E[You award badge]; E --> F[Student claims it in the issuing system]; F --> G[Student adds it to his/her master backpack in Mozilla];
```

CAVEATS

- Badges are microcredentials, not auto-rewards. They should be **earned**.
- Early badges can be easy to earn to get people familiar with them. Later ones should add more challenge or have more paucity.
- Don't exchange them for seat time or "just showing up" and claim they learned something by dint of sitting there. 😊



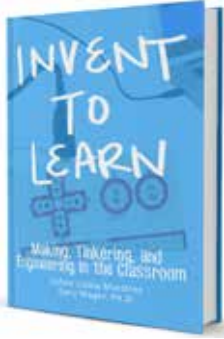
Exploring digital badges can open up important conversations about who, how, and what we assess.

Even if you don't end up using digital badges.

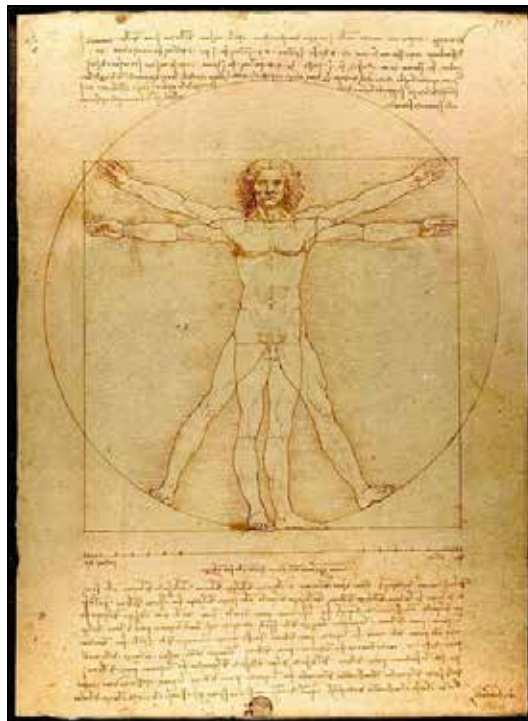
WHAT'S IN YOUR SCHOOL'S DREAM MAKERSPACE?

- STITCHING**
 - Knitting
 - Crochet
 - Sewing
 - Needlepoint
 - Bibron embroidery
 - Crewel
 - Cross stitch
 - Crewel
 - Stitchery
 - Quiltmaking
 - Tailoring
 - Patternmaking
 - T-shirt refashioning / Project Runway challenges
 - E-Textiles
 - Sewing machine
 - Embroidery machine
 - Serger
 - Hand puppets
 - Splinting
- PAPER**
 - Origami
 - Quilling
 - Paper airplanes and gliders
 - Cutpapering
 - Hand-drawn comics
 - Cardboard box creations
 - Scrapping
 - Collage
 - Decoupage
 - Silhouette Cameo
 - Cricut machine
 - Shadow puppets
- APPS, SOFTWARE, AND WEB-BASED TOOLS**
 - Animation (e.g., Golanmata.com, Xtranormal.com)
 - Content-making (e.g., Poston.com, MakeBeliefsComix.com)
 - Photo editing (e.g., Picmonkey.com, Pixlr.com)
 - Stop-Motion animation (e.g., MyCreate app)
- VIDEO PRODUCTION**
 - Production Room
 - Green Screen
 - MovieMaker/Moviefx
 - FinalCut Pro
- GRAPHIC DESIGN**
 - Canva.com
 - GIMP
 - Adobe Photoshop
 - Adobe Illustrator
 - Adobe InDesign
- PROGRAMMING/COODING**
 - HTML
 - Python
 - Java
 - http://javaweb.mit.edu
 - Arduino microcontrollers
 - Raspberry Pi minicomputers
 - LEGO MindStorm
 - MaKey MaKey
- SCIENCE**
 - Make your own musical instruments
 - Paper airplane trajectories
 - Make your own weather
 - Make your own challenges
 - LEGO MindStorm
- COOKING**
 - Kitchen knives 101
 - Make fresh salsa
 - Make smoothies
 - Cookie decorating
 - Cake decorating
 - Freezer jam
- WRITING**
 - Choose Your Own Adventure
 - Site-word memoir
 - NaNoWriMo
 - PiBOLDie
 - Sapwood Book Machine
 - DIT Publishing: Lulu, CreateSpace, Smashwords, Scribd.com
- 3D MODELING AND PRINTING**
 - 3Doodler pen
 - 3D printer (e.g., MakerBot Replicator 2, Cube)
 - MakerWare software
 - Tinkercad.com
 - Sketchup.com
 - Maya or Blender software
- MISC.**
 - Rubber band bracelets
 - Shrinky Dinks
 - Duct tape wallets
 - Marshmallow launchers
 - Junk box challenges
 - Art boxes
 - Candle making
 - LEGO pieces
 - Decorative painting
 - Furniture refinishing
 - Auto repair
 - Bike repair
- PARROTING**
 - Seed exchange
 - Seed printing
 - Seed arranging
- WHAT ELSE?**

<http://bit.ly/ala-makerspace-list>



We're still learning, too!
<http://makerbridge.si.umich.edu> - @makerbridge
 created by Sharona Ginsberg



**Makers
 Make
 Stuff.**



Makers
Transform
Stuff.

**Making isn't new ...
just new tools**





MAKER MINDSET FOR EDUCATORS

Process over product

Agency over teacher-directed work

Choice over following directions

Experimental mindset over “you fail if it doesn’t work the first time”

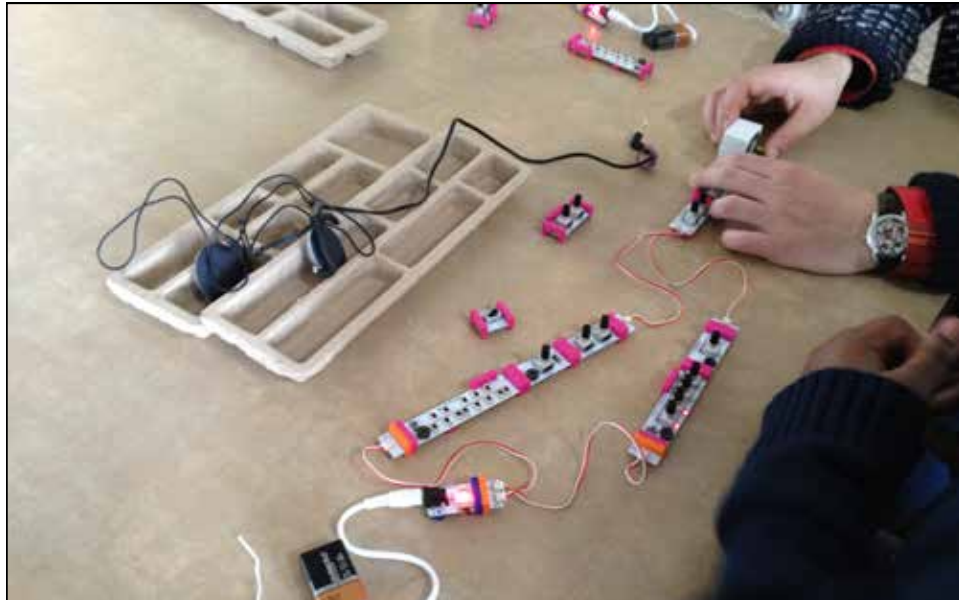


**A QUALITY
MAKERSPACE LETS
STUDENTS WORK
FROM THEIR
“CENTER OF
GRAVITY”**

(DEWEY 1900)



SOME THINGS TO CONSIDER ...



#1: NO TWO MAKERSPACES ARE THE SAME.

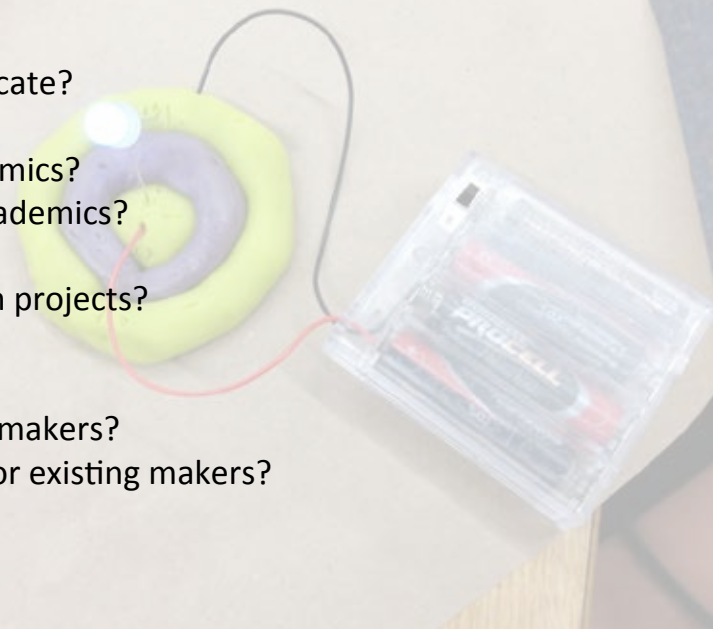
#2: KNOW YOUR PURPOSE BEFORE BUYING ANYTHING.

Entertain? Educate?

Enhance academics?
Fill a void in academics?

One-off faddish projects?
A community?

Welcome new makers?
New services for existing makers?





EXAMPLE: MICHIGAN MAKERS

- Create community around making
- Balance DIY exploration with guidance from mentors
- Create sustainability and replicability
- “Have something for every member of the family”
- Support non-traditional makers, esp. low-SES, females

#2: CONSIDER SHORT- AND LONG-TERM PROJECTS (AND START SMALL).



3: EMBRACE OPEN – AND OPEN SOURCE -- THINKING.



'Arduino Uno R3' by SparkFun Electronics on Flickr. CC-BY.
<http://flickr.com/photos/sparkfun/8406865680/>

COROLLARY: LOOK FOR PARTNERS & SHERPAS.





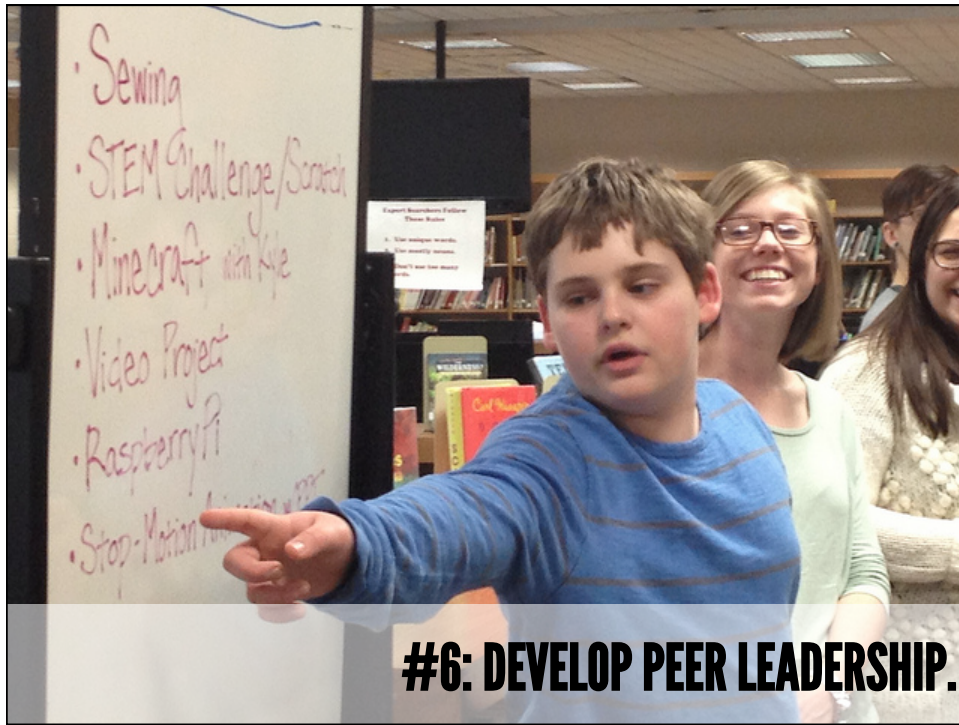
**COROLLARY:
PARTNER SKILLS, TOO: LOOK FOR MASHUPS.**



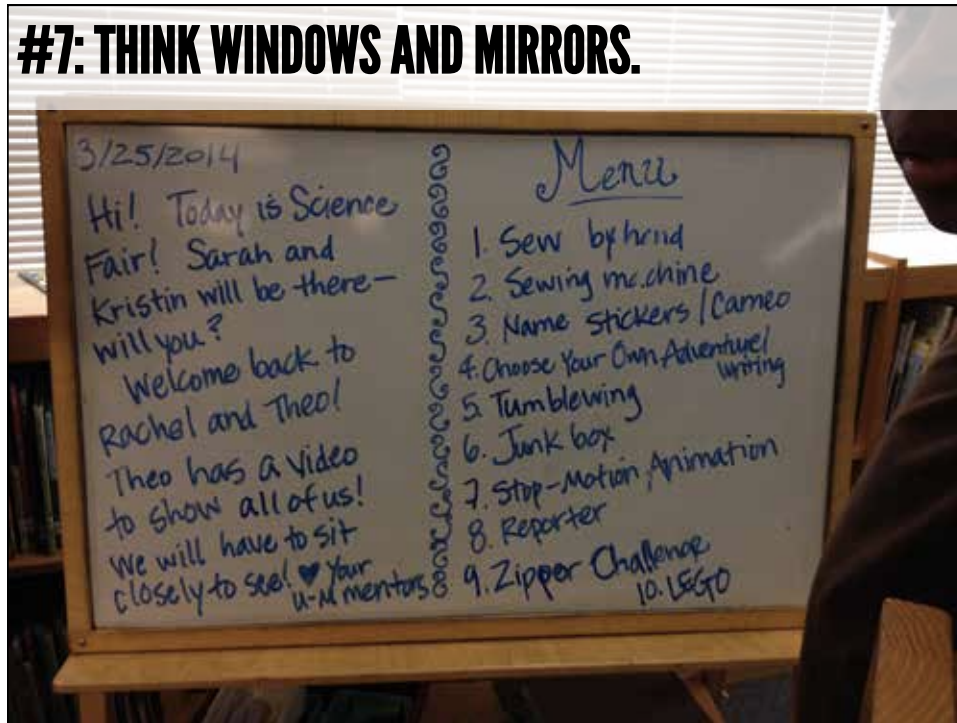
#5: NOT ALL MAKING IS SERIOUS BUSINESS.



COROLLARY: SOMETIMES, MAKING ALLOWS FOR SELF-SOOTHING AND RE-CENTERING.



#7: THINK WINDOWS AND MIRRORS.



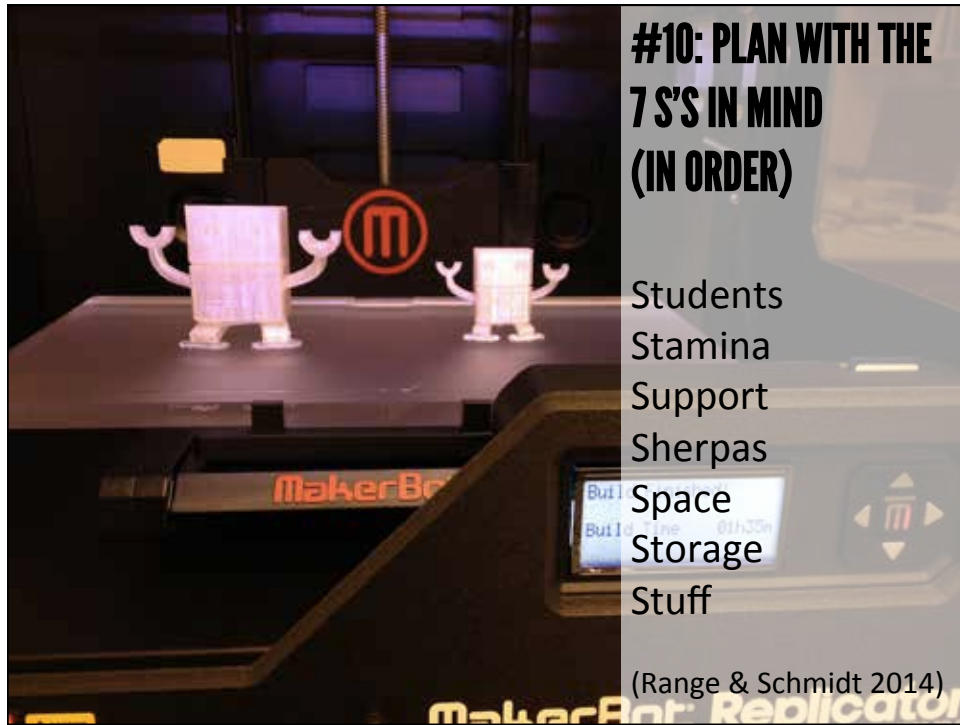
#8: CELEBRATE DAILY PROGRESS.



#9: CELEBRATE LONG-TERM PROGRESS.



COROLLARY: CELEBRATE BY JUST MAKING SOMETHING.



#10: PLAN WITH THE 7 S'S IN MIND (IN ORDER)

- Students
- Stamina
- Support
- Sherpas
- Space
- Storage
- Stuff

(Range & Schmidt 2014)

QUESTIONS?

KRISTIN FONTICHIARO

font@umich.edu
 @activelearning
<http://bit.ly/fontblog>

Named a "Top 10 Series Nonfiction" by *Booklist*, 4/1/2014
 "Here's a series many librarians need as much as their readers ... the volumes in this cutting-edge series communicate a level of energy that elevates the challenging material into need-to-know-right-now stuff."
 Coming this fall: 3D Modeling – Soldering – Squishy Circuits – Web Design with HTML 5