

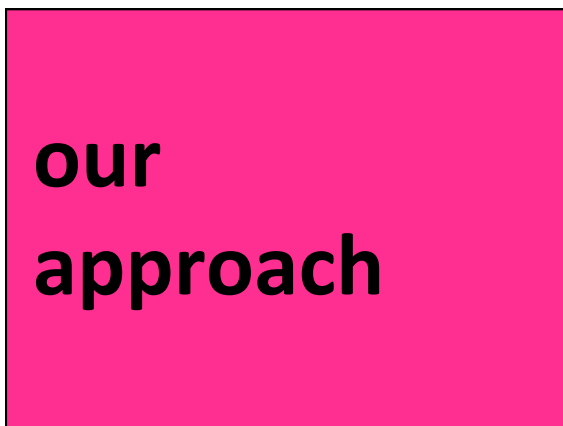
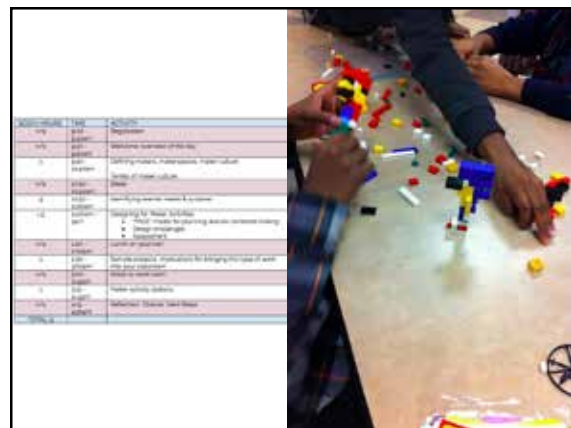
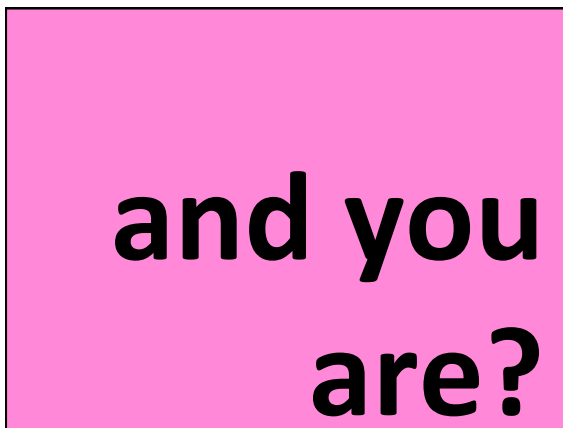


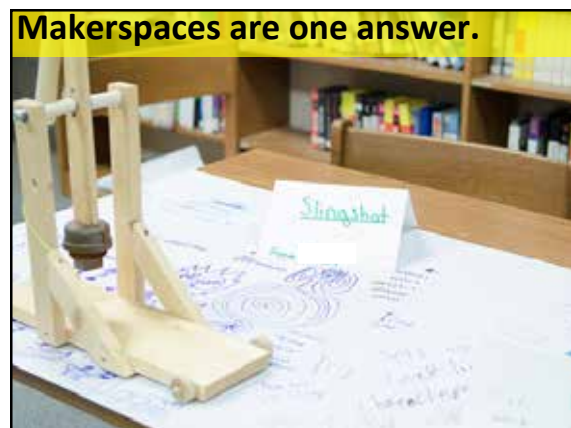
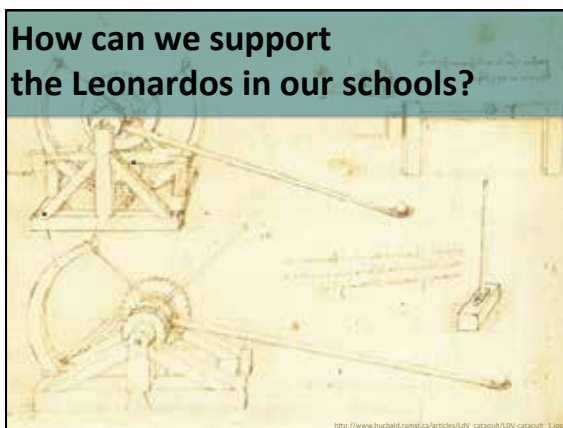
Making Maker Learning

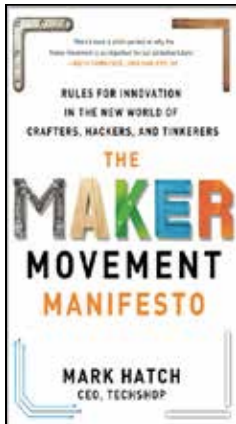
Kristin Fontichiaro
Amber Lovett
Quenton Oakes
Kamya Sarma
University of Michigan
School of Information

contactmichiganmakers@umich.edu
Slides tonight:
<http://bit.ly/fontblog>

Tuesday, May 10, 9:30 – 4:30,
Benton Harbor Public Library







<http://bit.ly/makermanifestochapter>

MAKE

Making is fundamental to what it means to be human. We must make, create, and express ourselves to feel whole. There is something unique about making physical things. These things are like little pieces of us and seem to embody portions of our souls.

LEARN

You must learn to make. You must always seek to learn more about your making. You may become a journeyman or master craftsman, but you will still learn, want to learn, and push yourself to learn new techniques, materials, and processes. Building a lifelong learning path ensures a rich and rewarding making life and, importantly, enables one to share.

<http://bit.ly/makermanifestochapter>

This is a makerspace.



This is, too.



And so is this.



And this.

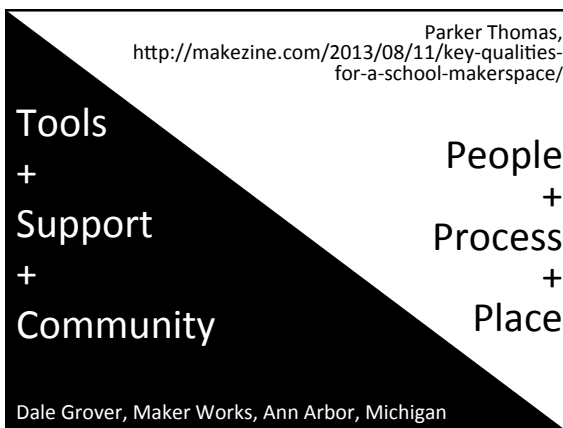


Parker Thomas,
<http://makezine.com/2013/08/11/key-qualities-for-a-school-makerspace/>

Tools
+
Support
+
Community

People
+
Process
+
Place

Dale Grover, Maker Works, Ann Arbor, Michigan



Parker Thomas,
<http://makezine.com/2013/08/11/key-qualities-for-a-school-makerspace/>

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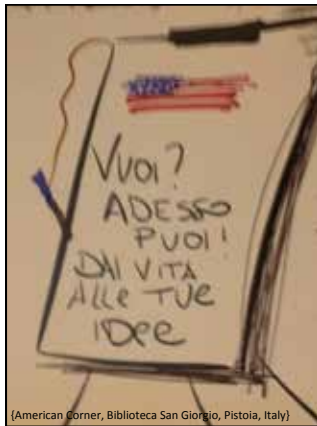
Dale Grover, Maker Works, Ann Arbor, Michigan



Making isn't new ...

http://upload.wikimedia.org/wikipedia/commons/0/04/Popular_Science_Monthly_1916_Ad.jpg



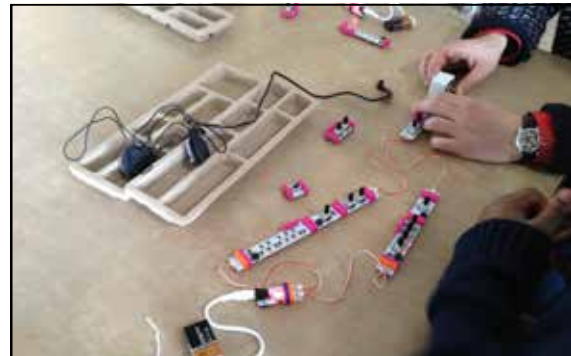


{American Corner, Biblioteca San Giorgio, Pistoia, Italy}

Want to?

Now you can!

**Give life
to your ideas**



No Two Makerspaces Are The Same.



Some Things to Consider ...



#1: Know Your Purpose Before You Buy Anything.

Entertain? Inform? Educate?

Enhance academics? Fill a void in academics?

Have one-off projects or build 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"

#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/846683586/>

Corollary: Look for Partners & Sherpas.



Corollary: Partner Skills, Too: Look For Mashups.

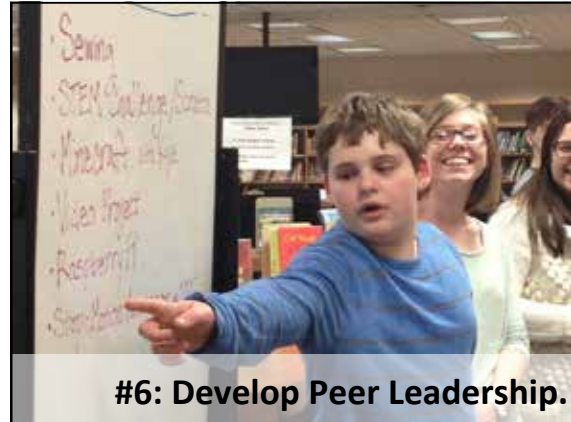


#5: Not all making is serious business.





Corollary: Sometimes, making allows for self-soothing and re-centering.



#6: Develop Peer Leadership.

Corollary: Redefine "Teacher" And "Learner."



**Corollary:
Match
Mentors
with
Learners.**

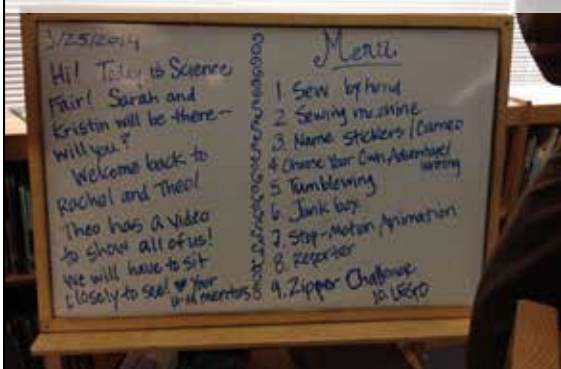


Marshmallow Towers



Egg Drop Challenge

#7: Think Windows And Mirrors.



#5: Think Windows And Mirrors.

There is something missing in our definition, vision, of a human being: the need to make.

We are creatures who need to make.

Because existence is willy-nilly thrust into our hands, our fate is to make something--if nothing else, the shape cut by the arc of our lives

Making is the mirror in which we see ourselves ...

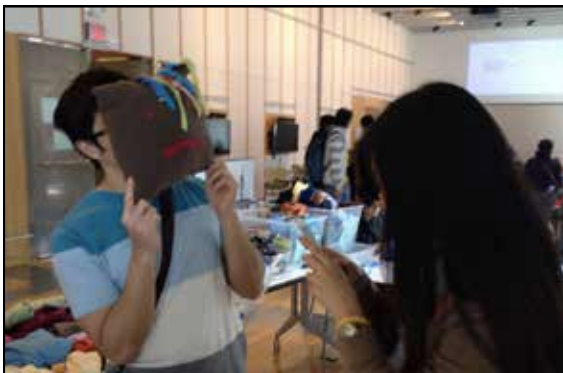
Frank Biedart, "Advice to the Players,"
<https://harvardmagazine.com/1999/09/poetry.html>



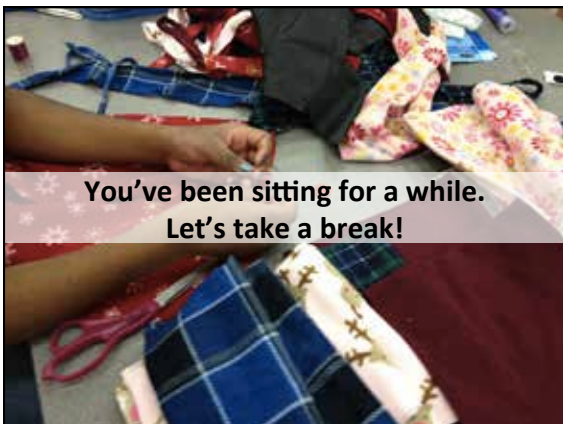
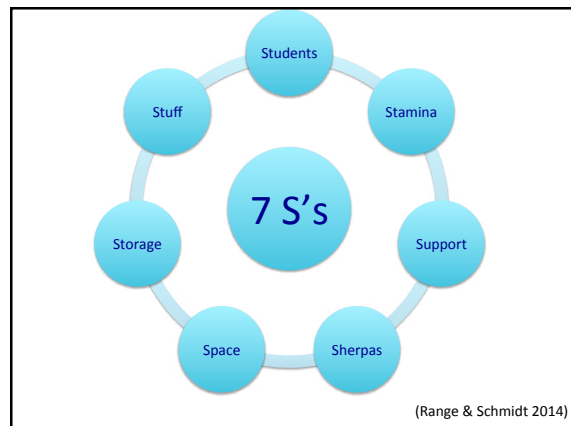
#8: Celebrate Daily Progress.



#9: Celebrate Long-term Progress.



Corollary: Celebrate by just making something.



**You've been sitting for a while.
Let's take a break!**



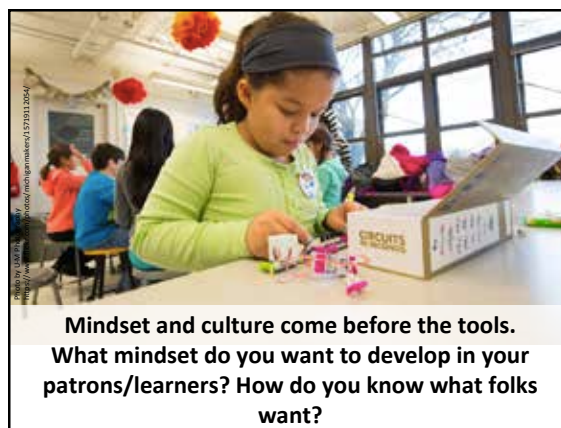
determining purpose

**why does
this matter?**



**Our
makerspaces
hit the mark
when makers
are working
from their
“center of
gravity”**

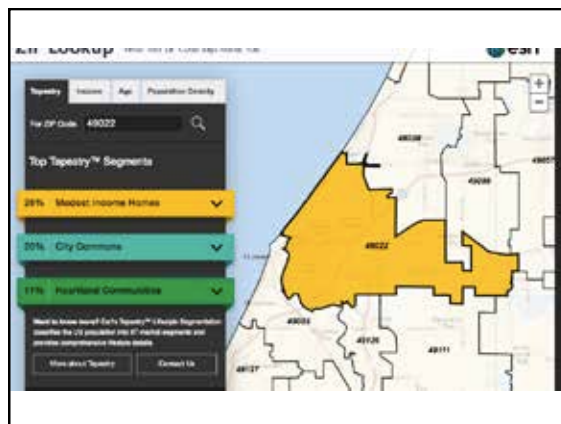
(Dewey 1900)

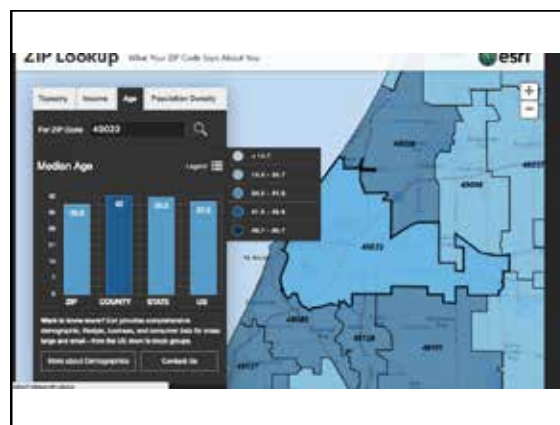
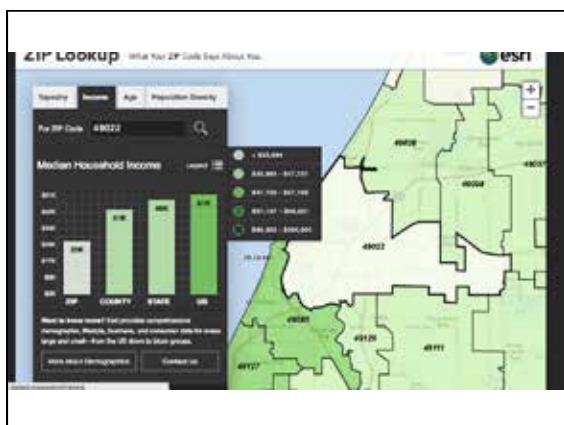


**Mindset and culture come before the tools.
What mindset do you want to develop in your
patrons/learners? How do you know what folks
want?**

Data Points

- School Curriculum
- Library Circ Patterns
- Petting Zoos (pool your resources!)
- Mel.org → Databases > DemographicsNow
- ESRI Tapestry (<http://www.esri.com/landing-pages/tapestry>)





Consider a charter or manifesto for your makerspace (with adults or kids).



Based on _____, I see that our students/patrons need opportunities to _____.


Therefore, we'd like to launch a maker program that will give them the chance to _____.

In this program, we will prioritize _____.

We will know that we are successful if _____.

turn and talk.

ok.
now how do we
structure this?



Some context!
For us, making prioritizes:

- Process over product
- Agency over teacher-directed work
- Choice over following directions
- Experimental mindset over "failure if it doesn't work the first time"



Remember our activity from this morning?

Free maker PD this summer statewide! makinglibraries.si.umich.edu
Today's slides: bit.ly/fontblog



Whose work stood out to you as being great?

What criteria did you use to determine whose was best?

If we were to repeat the exercise and share those criteria, what do you think might happen to the range of ideas we saw?

It's really hard to compare open-ended work, isn't it?

But what gets assessed gets attention,
right?

So how do we **assess** in our maker efforts?

Maybe we **don't** measure what they **make**.

Maybe we measure their **thinking** instead.

Seven Strategies

1. Title: Subtitle
2. Process Journals
3. Stand-Up Meetings
4. Design Challenge
5. Gallery Walking
6. Artist Statements
7. Portfolios

Title: Subtitle

artistic: explanatory

creative: factual

Taking Flight: Paper Airplane
MonkeyMatic: A New Toy Using Centrifugal Force
Origami Leia: A New Star Wars Toy

Title: Subtitle

(artistic: explanatory)

(creative: factual)

Tweet a photo of your index card creation.

1. Title & subtitle it.
2. #madeinbh



Design Challenges

- Common challenge for each student
- Open options for completion to give space for agency and choice
- Agreed-upon metrics for success
- Built on curriculum learning
- Preceded by direct instruction and/or interspersed with mini-lessons as needed
- Time limits serve to motivate creativity within constraints



#1 Design Challenge Seeds

- Design an **invention** that would fix _____
- Create a **prototype** that would _____
- Research and identify a **solution** that _____
- Create a **stamp/statue/logo/mascot** for _____ based on what you know about _____



#1 Design Challenge Examples

- We have studied how _____ influenced society by harnessing/inventing _____. What new global challenge do you see needing to be solved? Create a **prototype** for your solution.
- People with Parkinson's have difficulty eating soup because their hand shakes. **Research existing solutions** and design an alternative ...



Your Challenge! By _____

Individual Challenge

- Create a sculptural representation of the theme or conflict of your favorite book or historical event.
- Be prepared to explain the choices you made.
- Use a sticky note to create a catchy title and informative subtitle, like this: Alone Among Others: A Key Social Theme in Hamlet

Group Challenge

- Start by collecting data from group members about something that new students struggle with at your school or library.
- Use that data to focus on a single problem.
- Brainstorm solutions.
- Build a prototype.
- Be prepared to explain the choices you made.
- Use a sticky note to create a catchy title and informative subtitle, like this: Friend Tracker: An App to Help New Students Find Kindred Spirits

*Or ... create your own challenge and be ready to explain it to others.
Or ... be a group reporter!*

Assessment in design challenges can come from ...

- Product pitches
- Advertising copy for product
- Infomercials for product
- Letters
- Any of the other techniques

Gallery Walking

- ½ present, ½ view
- Consider half-page "Hamburger-style" table tents
 - Possible content:
 - What is the object?
 - What does the creator want the viewer to notice in particular?
 - I am proud of _____.
 - Keep to one sentence
 - In-process or after project completion

Maker Gallery Walk Guidelines

- Lend support, not critique
- Ask questions
- Listen intently
- Give advice only if asked for it

Gallery Walk until _____

- Framing gallery walk/exposition etiquette with kids
- Move your creation to the back of the dining hall (leave your workspace as is)
- Remember your caption! Fun title: Informative subtitle
- Take turns staffing your station



Artist Statements

Artist Statements Can Convey

- Purpose/intent
- Process (if succinct)
- Inspirations
- Unpacking of your thinking about the product you made

Great resource for your teaching:
<http://www.artbusiness.com/artstate.html>

Artist's Statements at multiple points in process

Formative Assessment

- "Ticket out the door"
- Index card
- A few sentences or a paragraph
- Cloze sentences:
 - "The visuals I chose are meant to _____."
 - "I chose this medium because _____."
 - "The visuals in my slide deck are meant to _____."
 - "I'm including this primary source image because _____."

Summative Assessment

- Multiple paragraphs
- Extended thought
- Reflects on the finished product and on the process



Artist's Statement

This group of pictures was completely unexpected. I arrived in Italy last summer as a Visiting Artist at the American Academy in Rome, with plans for a project involving fascist era beachfront architecture in Ostia, and perhaps something centered on gardens in the family parkland outskirts of Rome. But on our first day there I made my own pilgrimage to the Pantheon, one of my favorite places to be in Rome, and usually a primary destination.

A constant stream of visitors enters and exits the Pantheon all day. For the most part, they have their recording devices held high over head as they enter, forgoing the old fashioned step of looking at something first, then photographing it. No, these pilgrims have their memories immediately ferried out to digital data storage, safely enclaved for retrieval at some later date. There was something charming about it, something universal and soothing, not cynical exactly but focused and intense, a hint of the divine in an otherwise mechanized world. Everyone gazing raptly into the statue, the eye of God. I fell into a rhythm, studying the screen of my own camera and waiting for the moments of rapture and deep concentration, moving fluidly from one subject to the next. Time lost in my own rapture, my mind quiet but for the occasional visit from the ghost of Walter Evans, whose pictures of subway riders during the early 1940s were never far from my thoughts.

The 45 photographs in this exhibition were made on four days in October 2012 with the Sony RX100 digital camera. I want to thank my wife Terry Hagan for her love and thoughtfulness, Daniel LeVick for his advice and assistance in many aspects of this exhibition, Uli Celentano, Craig Welton, Elizabeth Kolbert, Gill Wright, the Stanford University Department of Art and Art History, and the American Academy in Rome.

Joel LeVick, Robert and Ruth Helmer Professor in Photography, Department of Art & Art History, Stanford University.

Dedicated to my friend Richard Goodson.

lunch 1-2pm

if time, artist statement practice

break

maker activity stations until _____

use your purpose statement as a lens through which to see tools that are a good fit

reflection, closure, next steps, evaluation

contactmichiganmakers@umich.edu
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