WASHINGTON INTERNATIONAL SCHOOL

Agency by Design
Framework for Labs and Lessons

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What is Agency by Design (AbD)?

Agency by Design is a multi-year project within

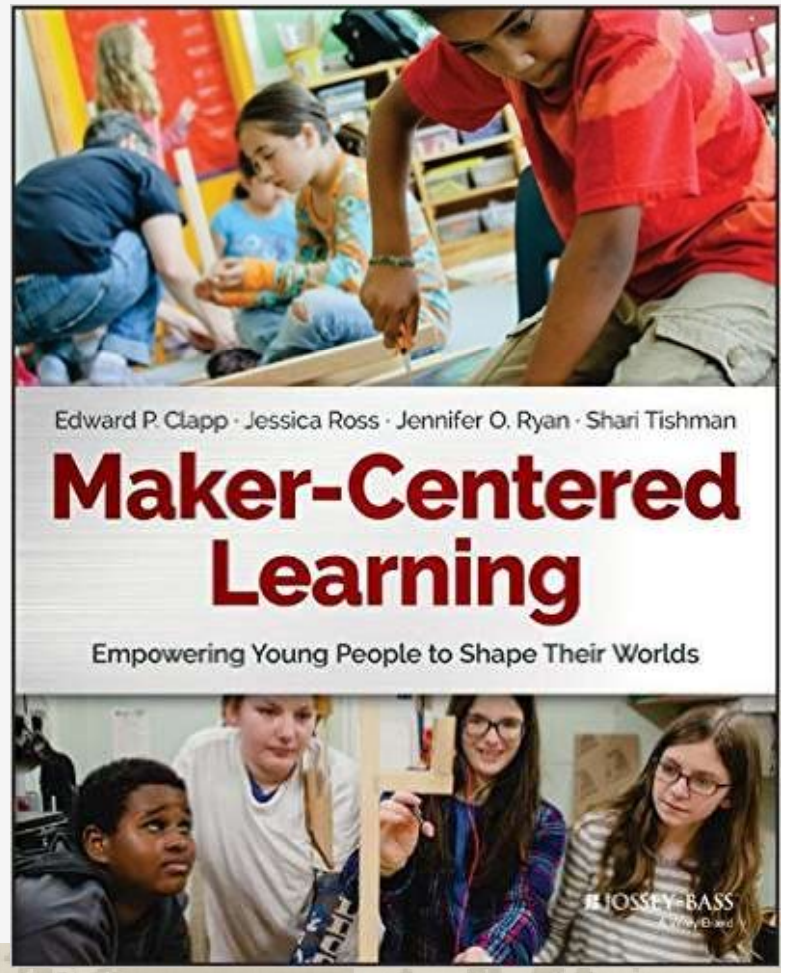
Harvard Project Zero

to study the

Promises, Practices, and Pedagogies

of

Maker—Centered learning



Benefits of Maker-Centered Learning:

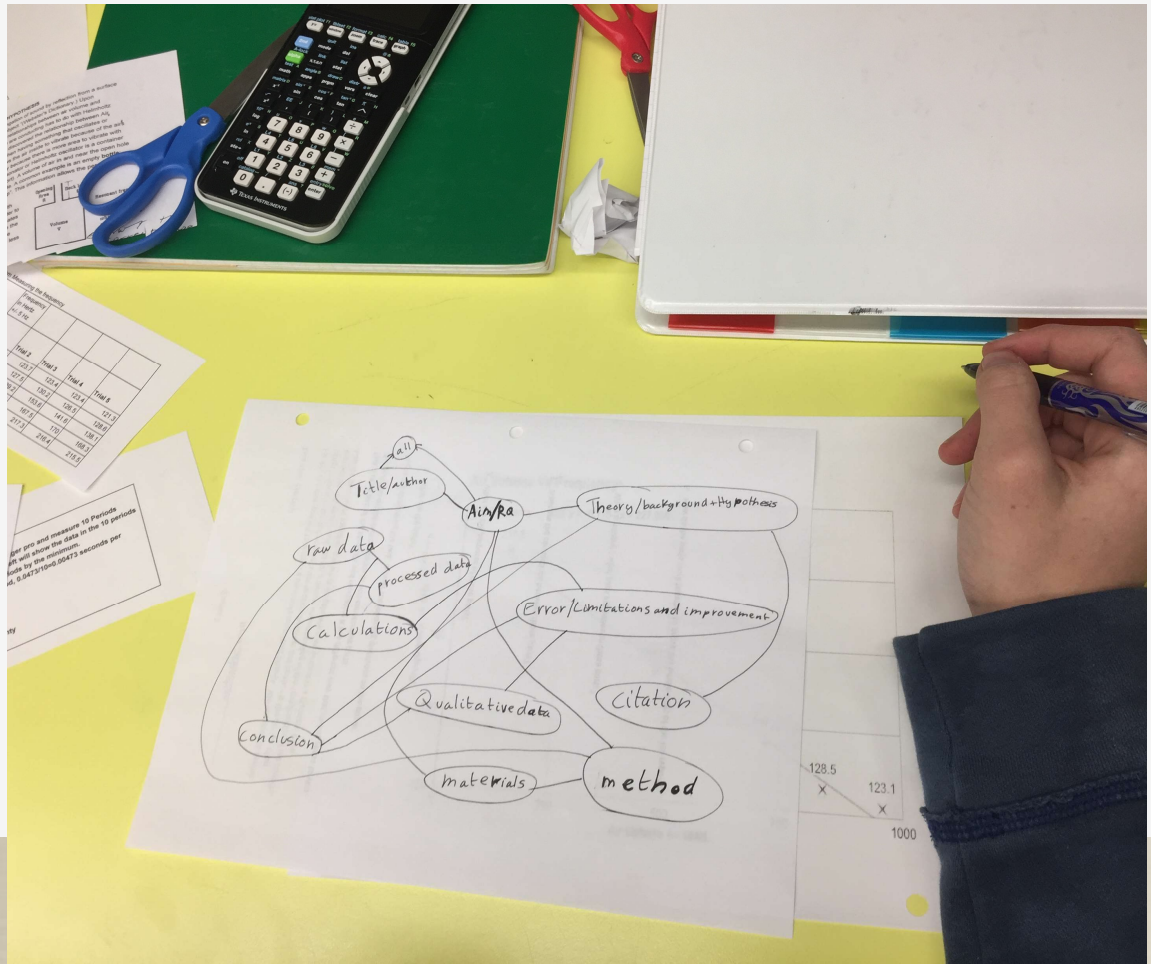
1. Maker empowerment
2. Develops curiosity
3. Develops careful risk-taking
4. Develops persistence
5. Develops empathy

Intersection of Making and Education

- Integrating AbD is not about re-writing the curriculum
- Integrating AbD can enhance parts of your curriculum and help students make meaningful connections with learning goals

Core AbD Concepts

1. Maker Empowerment: the capacity to shape one's world through building, tinkering, re-designing, or hacking
2. Sensitivity to Design: learning to notice and engage with one's physical and conceptual environment



Core Principles of Agency by Design

Looking Closely:
Looking carefully at objects and systems in order to notice their intricacies, nuances, and details. By looking closely, one may begin to see the complexities inherent in objects and systems.

Exploring Complexity:
Investigating the interactions between the various parts and people associated with objects and systems, including the range of values, motivations, and priorities held by the individuals who engage with particular objects and systems.

Finding Opportunity:
Building on close observations and explorations of complexity to see the potential for building, tinkering, re/designing, or hacking objects and systems.

AbD Agency by Design
Project Zero at the Harvard Graduate School of Education

WIS

Core Activities to Support AbD

Parts, Purposes, Complexities
Looking Closely

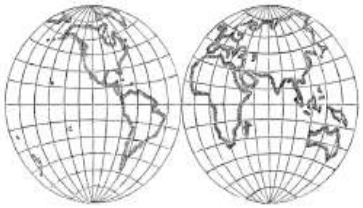
Choose an object or system and ask:

What are its **parts**?
What are its various pieces or components?

What are its **purposes**?
What are the purposes for each of these parts?

What are its **complexities**?
How is it complicated in its parts and purposes, the relationship between the two, or in other ways?

Parts, People, Interactions
Exploring Complexity



Identify a system and ask:

What are the **parts** of the system?

Who are the **people** connected to the system?

How do the people in the system **interact** with each other and with the parts of the system?

How does a change in one element of the system **affect** the various parts and people connected to the system?

Think, Feel, Care
Exploring Complexity

Step inside a system:

Choose a variety of people within a system and then step inside each person's point of view. As you think about what you know about the system, consider what each person might think, feel, and care about:

Think: How does this person understand this system and their role within it?

Feel: What is this person's emotional response to the system and to their position within it?

Care: What are this person's values, priorities, or motivations with regard to the system? What is important to this person?

Google: "AbD Thinking routines" to find these and more

Making Across the Curriculum

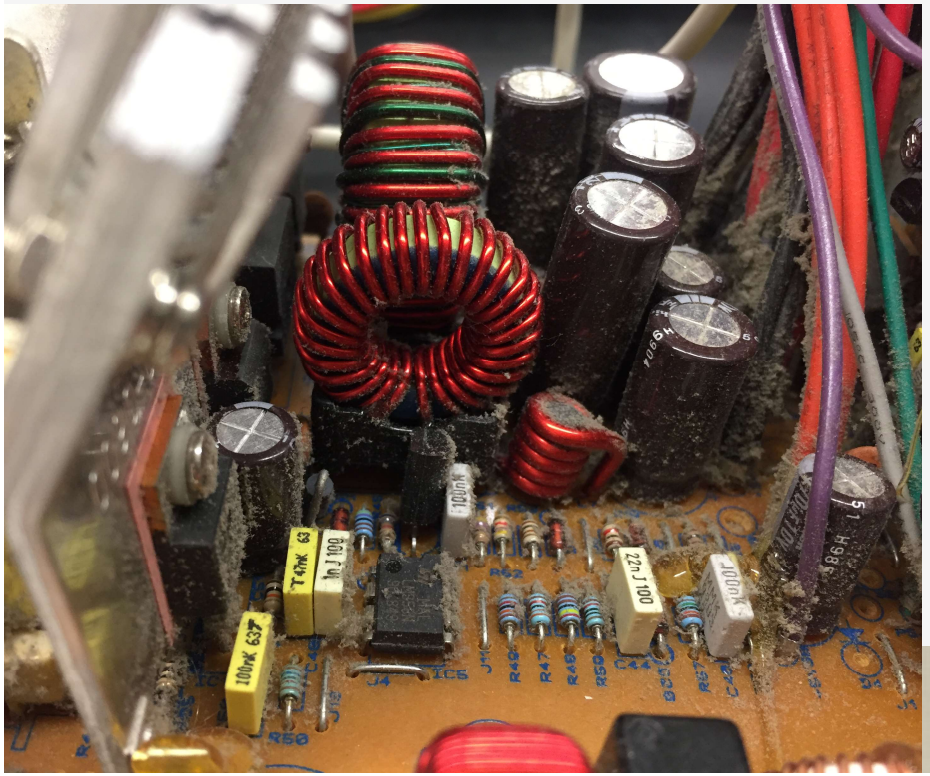
Over the past year,
Washington International School partnered with Project Zero researchers to explore ”**Making Across the Curriculum**”

Research included:
1. Learning about best practices in Maker-centered pedagogy
2. Finding projects to implement in our classes
3. Participating in a learning group to share our projects and feedback on each others’ projects

Example 1: Resistors and Ohm's Law

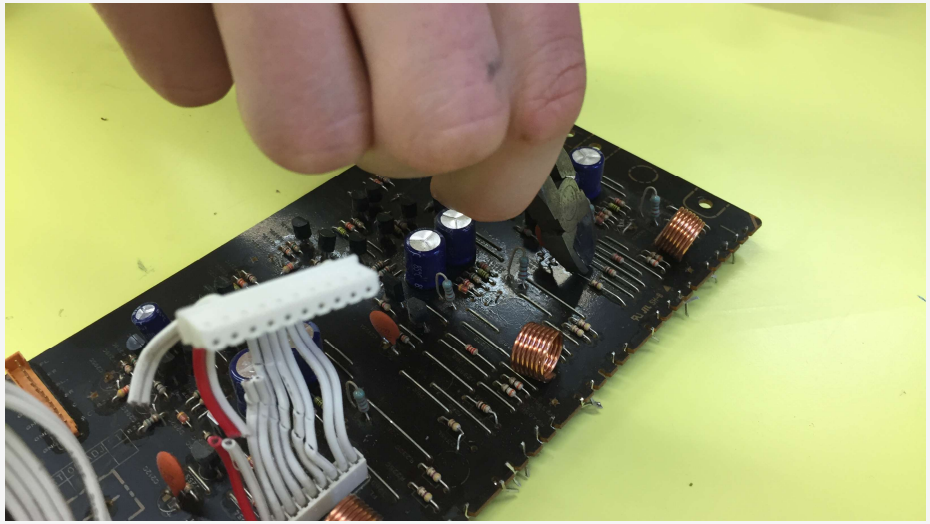
Old lab:

1. Pick 3 resistors from a box
2. Measure the V-I characteristics



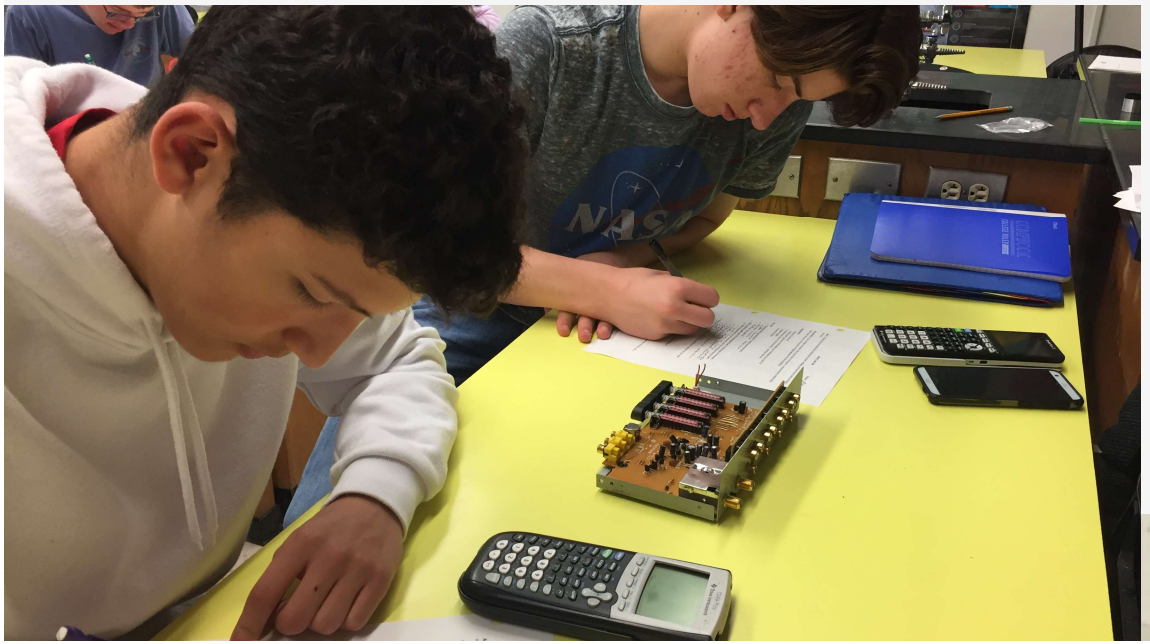
Abd "close-looking" lab:

1. Pick a board that uses resistors
2. Identify the components used on the board
3. Cut out a resistor
4. Measure the V-I characteristics



Reflection on Example 1:

- I did not get the question, “why are resistors useful?”
- Increased student motivation and anticipation for learning
- Easy to extend the lesson to other components of the board
- Led to discussion about uncertainty in measurements as students compared 3 ways to identify resistance: markings, ohmmeter, V-I Graph



Remaining Questions:

- How can I find a reliable supply for next year?
- At what time do I store / toss the components?

Example 2: Musical Instruments

Old lesson (3-days):

1. Pick one of six instruments
2. Research the instrument and present about how it works

AbD maker lesson (4-days):

1. Take apart an instrument and identify the components
2. Build a new instrument based on what you have learned
3. Perform at least 4 notes and different volumes

Reflection on Example 2:

- Student: “Best science class ever!”
- Motivational and Memorable
- Students had trouble connecting theory to practice, did not apply resonance calculations to making octatonic notes

Changes for next year:

- More scaffolding / practice worksheets
- 20-minute mini-lessons each day before the making
- Stricter requirements for making octatonic notes
- Coordinate with music dept

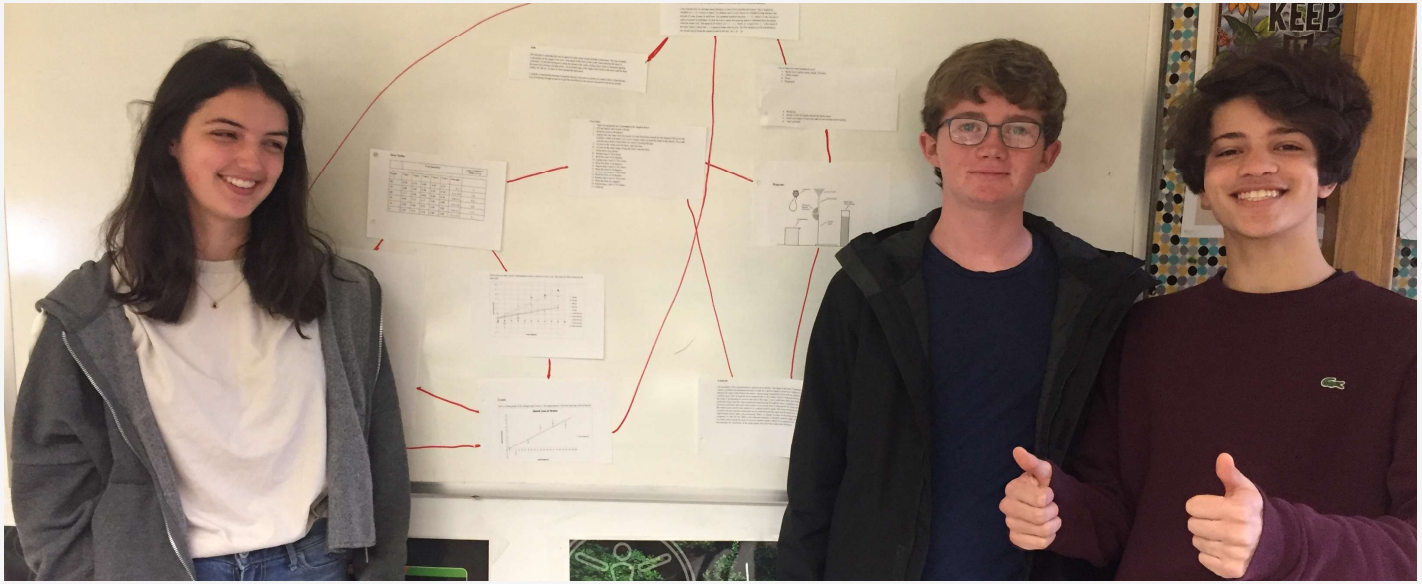
Example 3: Anatomy of a Lab Report

Old lesson:

1. Show exemplar lab report
2. Talk through the good and the bad of the exemplar

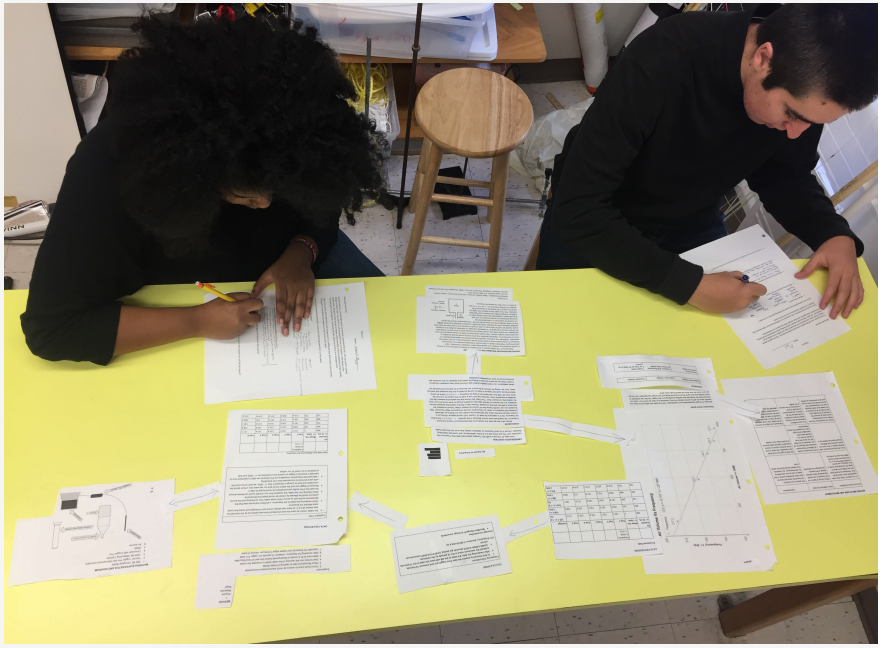
AbD “take-apart” lesson:

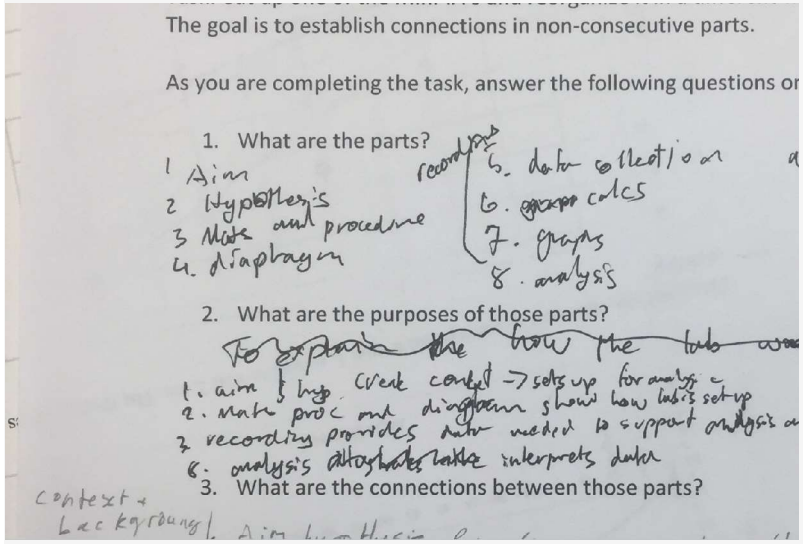
1. Students choose 1 of 4 reports
2. Cut the reports up and re-create a different, meaningful report



Reflection on Example 3:

- Strongly supported student learning for how to write a lab report and the connection between the parts of a lab report
- Hands-on learning was a big improvement from teacher-led





The goal is to establish connections in non-consecutive parts.

As you are completing the task, answer the following questions or

1. What are the parts?

1 Aim
2 Hypothesis
3 Mats and procedure
4. diaphragm
recording
6. data collection
6. graph calcs
7. graphs
8. analysis

2. What are the purposes of those parts?

To explain the how the lab
1. aim & hyp create context → sets up for analysis
2. mats proc and diagram show how lab is set up
3 recording provides data needed to support analysis
6. analysis allows reader interprets data

3. What are the connections between those parts?

context + background

Remaining Questions:

- Should I use “good” or “bad” examples?
- Would additional peer review allow for deeper learning?

References and more information:

Agency by Design website:
http://www.pz.harvard.edu/projects/agency-by-design

WISSIT website:
https://www.wis.edu/academics/wissit

DCPZ Collaborative:
http://www.pdcollaborative.org/2018/06/latest-news-from-the-collaborative/

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