Facilitating a Learner-Centered Makerspace

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The Maker Mindset

Fostering Inquiry
Broadly Defined

- It’s okay to fail
- Everything is connected (interdisciplinary)
- Collaborative
- DIY
- Rigor is good
- Problem/project based
Memory is the residue of thought.

- Daniel T. Willingham
Pedagogy

● Freedom within parameters!
● Authentic problems are key (have your students find these for you!)
● Alignment of problems with objectives
● How will you assess? (reflection, self-assess, peer review, portfolio, or final project)
● Criteria driven (how will you or learners know they have achieved what you wanted?)
● Facilitate and encourage
Tools and Tech

- Not everything has to be electronic
- Tech should complement objectives, not direct them
- Not always a space, sometimes it’s a shift in attitude
- Develop a PLN (personalized learning network) for training
  - Udemy, Coursera, Corporate training programs (Makerbot Educators)
  - Social media, Email newsletters, YouTube, Instructables
- Start small - any subject can be captured into a Maker mindset
Nuts and Bolts

- Media studio is a cheap and versatile entrance
- Use Google Sheets or Skedda for managing and scheduling
- Remember a Makerspace is for learners, so it should be designed from their perspective
- Praise and display student work openly
- Model the attitudes and grit you want your students to adopt
- Reach out to others who have knowledge
Goals and Objectives:

Adding validity to your course
Organizational Standards

South Carolina - Department of Education

- Variety of Fields

ISTE

- Students; Educators; Education Leaders; etc.
Here’s a decent recipe for goals and objectives

At least one that we follow
Characteristics of Goals and Objectives

- **Student-focused**
  - Inform the students of what they will be accomplishing. *The Student Will*...
  - These should not read as your lesson plan.

- **Higher order thinking skills**
  - You want the goals to be *higher order thinking* skills (derive, analyze, design, interpret, create, critique, plan, adapt, etc.)
  - Some of the goals may be lower order thinking skills (list, explain, identify, describe, summarize, discuss, etc.)
  - *Higher order thinking skills have lower order thinking skills embedded in them* (remember, understand, knowledge of...)

- **Measurable**
- **Concrete, not abstract**
  - Abstract goals are difficult or impossible to assess.

Expose students to what you do in the discipline (at the appropriate level), don’t just expose to what is known.
Letting the default configuration of a classroom dictate how we’ll teach is to allow the bureaucratic trappings of schooling subsume our pedagogies...The learning space should be constructed intentionally from one activity to the next and preferably by or in consultation with students.

Jesse Stommel, An Urgency of Teachers
Active Learning

- Active Learning is the adoption of instructional practices that engage students in the learning process.

- **Contrasts** “traditional” modes of instruction in which students are passive recipients of knowledge from an expert.

- The instructor’s role is an **expert guide** through activities and situations that engage students.
  - Students meet course goals and objectives through thinking about content.
SAMR

Redefinition
Technology is used for the creation of new tasks that were previously impossible

Modification
Technology is used to redesign tasks in a way that leads to significant improvements

Augmentation
Technology is used as a tool to substitute tasks and enable functional improvements

Substitution
Technology is used as a tool to directly substitute analogue practice with no functional change

Ruben R. PuenteDura, Ph.D
The SAMR Ladder:

**Substitution:**
- What will I gain by replacing the older technology with the new technology?

**Substitution to Augmentation:**
- Have I added a feature to the task process that could not be done with the older technology at a fundamental level?
- How does this feature contribute to my design?

Created by Weltenraser from Noun Project

Ruben R. Puente, Ph.D.
The SAMR Ladder:

**Augmentation to Modification:**
- How is the original task being modified?
- Does this modification depend upon the new technology?
- How does this modification contribute to my design?

**Modification to Redefinition:**
- What is the new task?
- Will it replace or supplement older tasks?
- How is it uniquely made possible by the new technology?
- How does it contribute to my design?
SAMR Update

SAMR Lesson/Project Update

Created by ProSymbols from Noun Project
We are happy to be a small part of UTC 2019.

@_ptford  @proftreado
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