

# Class Philosophy and Mindset

## Doing Mindset



### **LEARNING BY DOING**

Focus on 'Making' and 'Tinkering'



### **FAIL EARLY FAIL OFTEN**

Embrace experimentation and failure



### **FOLLOW THE PATH OF LEAST RESISTANCE**

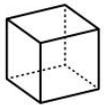
Quick and dirty prototypes are alright, you can iterate later



### **MINIMUM VIABLE PRODUCT**

Do not try to do too much at once, have an MVP in mind and add to that incrementally

## Teaching Mindset



### **GLASSBOX PROGRAMMING**

Bootstrapping programming with examples that can be repurposed

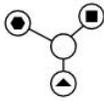


### **HELLO WORLD APPROACH**

Starting from low-hanging fruit & pushing the envelope of what students know incrementally

# Learning Mindset

## BEING RESOURCEFUL



Look for resources on Georgia Tech and within the Maker community



## PEER LEARNING

Teach and Learn



## SELF LEARNING

Somewhat ties back to being resourceful but always good to remember

# Constructionist Mindset

Papert (1991) in his theory on Constructionism discusses how people learn effectively through ‘making things’ and ‘creative experimentation’ and how that boosts self-directed learning.

In many ways, we followed a constructionist learning approach that promoted learning by doing and experimentation. During the course we saw examples of

- Students making projects personally meaningful to them
- Students learning new skills independently
- Students drawing on skills they already had
- Students transferring skills learned in this course to other courses on campus
- Students advancing their knowledge from this course either through another course or independently eg. a student independently went on to become a 3D print master at Georgia Tech’s Invention Studio since taking this course and volunteering at the Invention studio

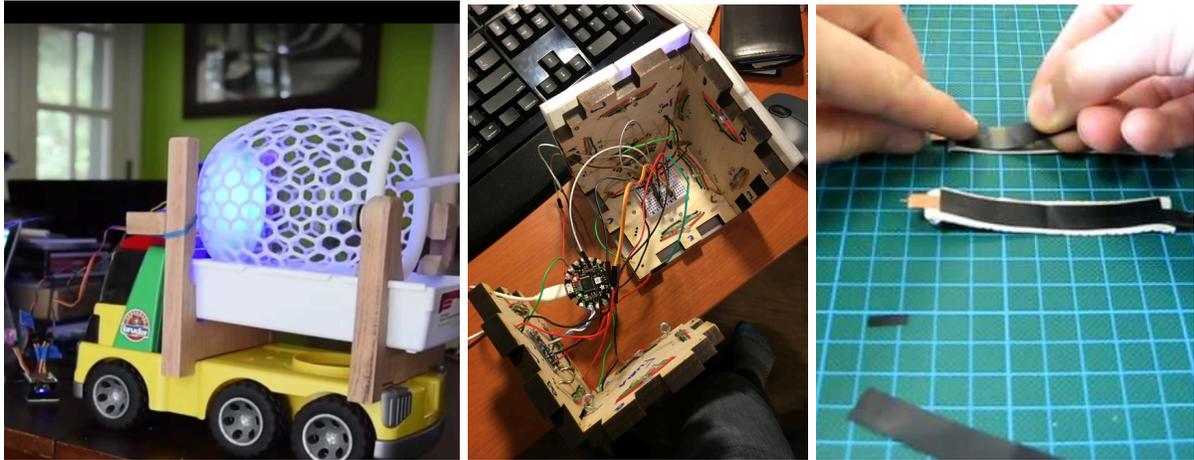


Fig 5. A [bubble blowing truck](#) a student made for their son(L) as an example of a personally-meaningful project, a student going beyond skills covered in this class to incorporate soldering in their project ([a game cube](#)) (C), a pressure sensor made by a student using resources on campus and on the web for a [light-up shoe](#) (R)

**Keywords**

Active learning, Constructionism, Self-Efficacy, Learning by doing, problem based vs. project based approach, peer learning

**Attribution**

Papert, S., & Harel, I. (1991). Situating constructionism. *Constructionism*, 36, 1-11.

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