

BODYVIS:

Live Physiological

Sensing &

Visualization

Tools

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Perceptibility

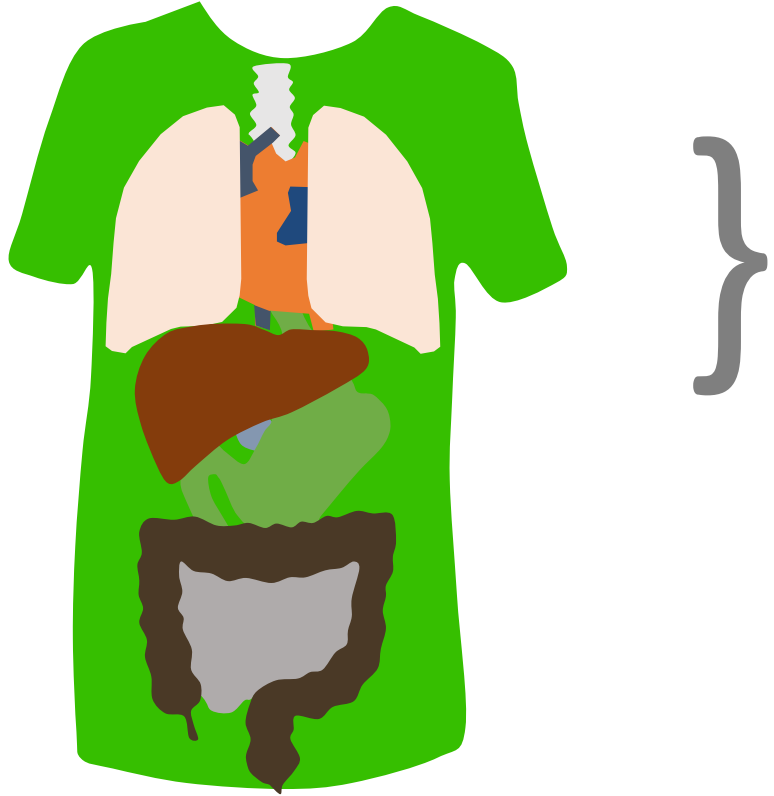
Tinkerability

Expressivity

Usability

Perceptibility

How designs can yield immediate feedback



What if our clothes revealed how our body's **functioned**?

How could this **change** the way **children learn** about and understand their bodies?

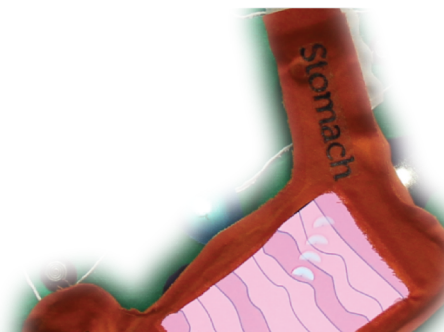
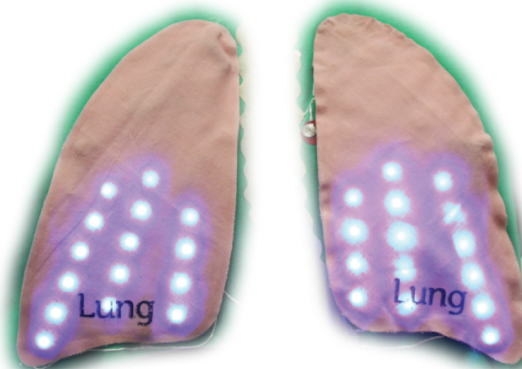
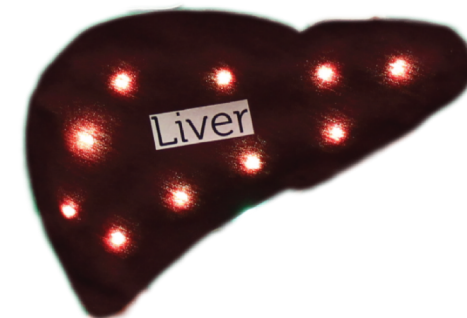
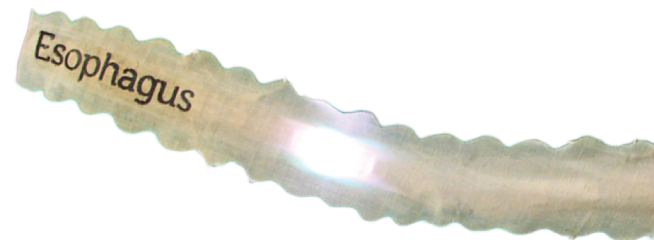
Could a t-shirt be a **platform** for **experimentation** and **inquiry**?

BodyVis

Live Physiological Sensing and Visualization Tools

Two LPSV Tools

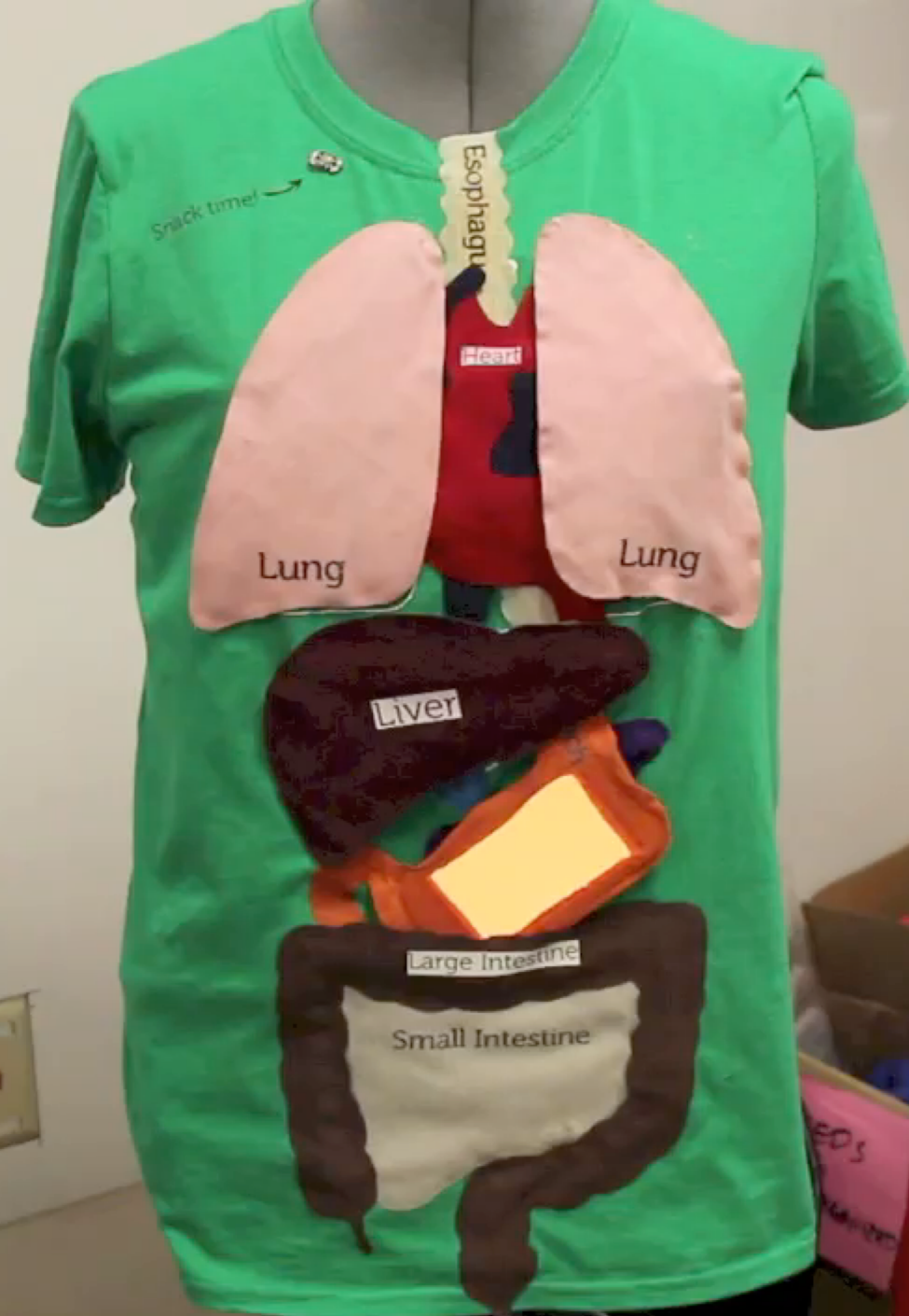




BodyVis

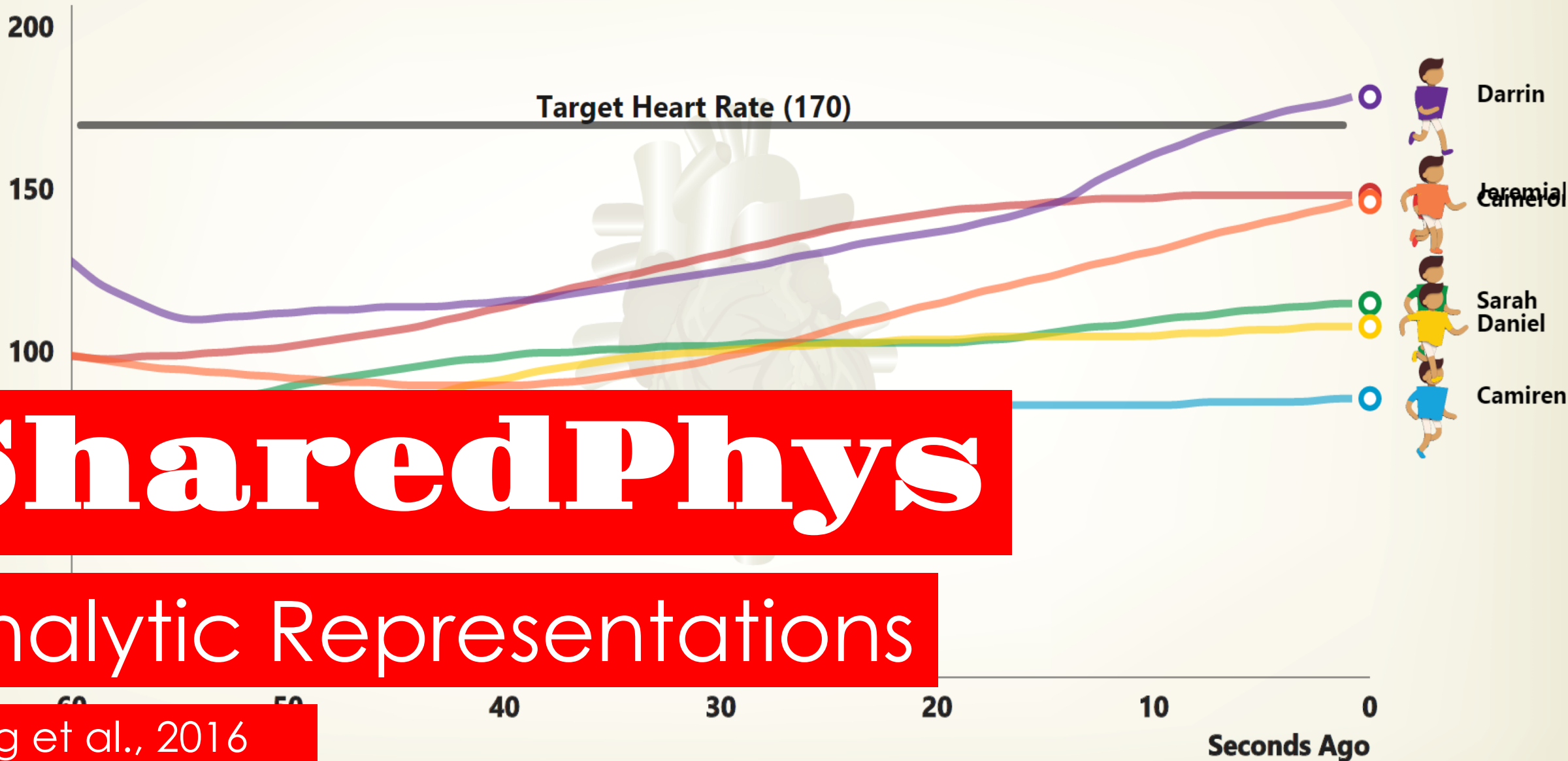
Model-based Representations

Norooz et al., 2015; Norooz et al., 2016





Heart Rate



SharedPhys

Analytic Representations

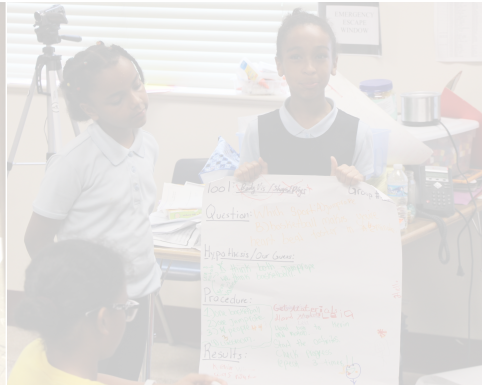
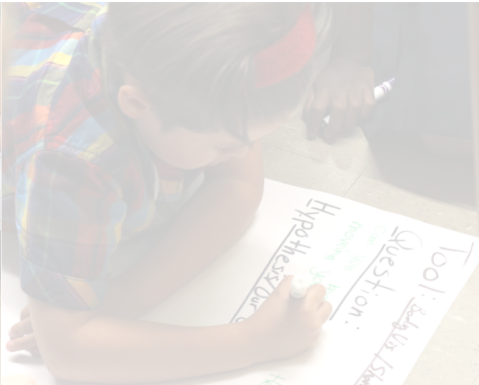
Kang et al., 2016

Moving Graphs

Kang et al., 2016

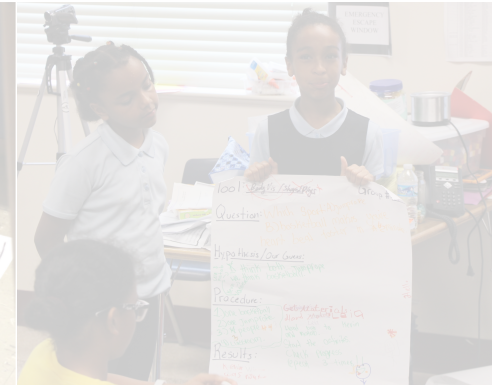
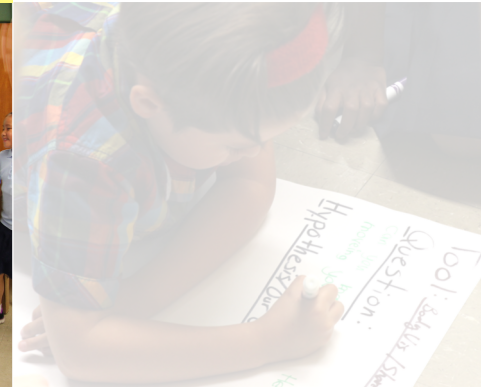
Day 1: Play and Discovery

Children **discussed questions** and engaged in **free-form exploration** with the tools in a scavenger hunt.



Day 2: Exploring Activities

Children **brainstormed physical activities** with BodyVis. They then **tested their hypotheses** with SharedPhys.



Day 3: Science Experiments

Children **planned scientific investigations** of their choosing with **BodyVis** or **SharedPhys**.



Day 4: Presentations

Children **presented** their choice-based investigations.

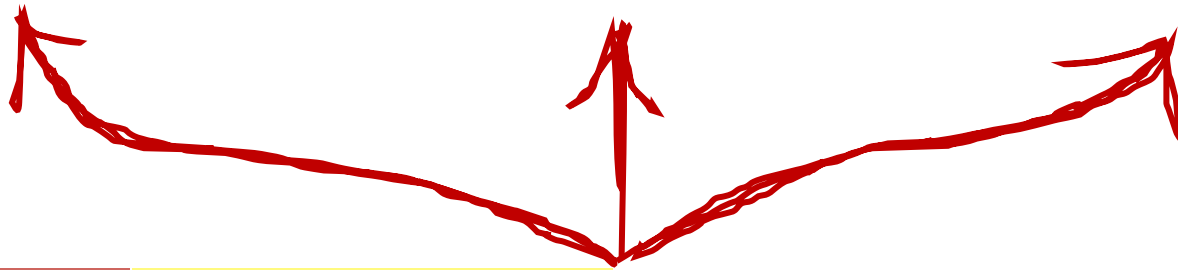


4-Day Workshops

1st Grade

2nd Grade

4th Grade



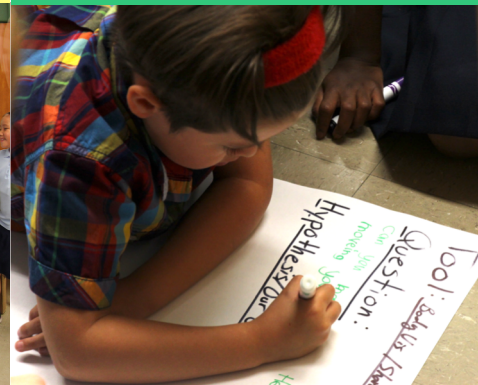
1. Play



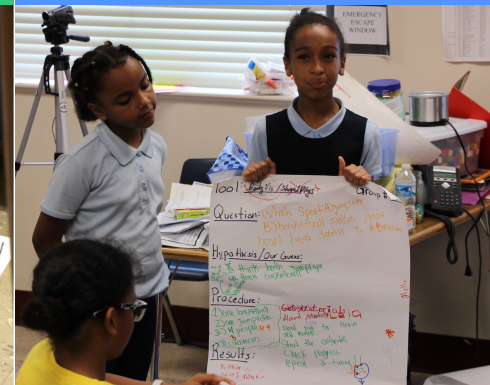
2. Explore



3. Experiment



4. present





Norooz et al., 2016; Clegg et al., 2017



Norooz et al., 2016; Clegg et al., 2017

Wearers

Pausing

Scaffolds

Observers

Byrne et al., 2018; Norooz et al., 2016

Perceptibility

Tinkerability

Expressivity

Usability

Tinkerability

How designs can yield playful, experimental styles of engagement

Co-design with Children

Norooz et al., 2015; Norooz et al., 2016



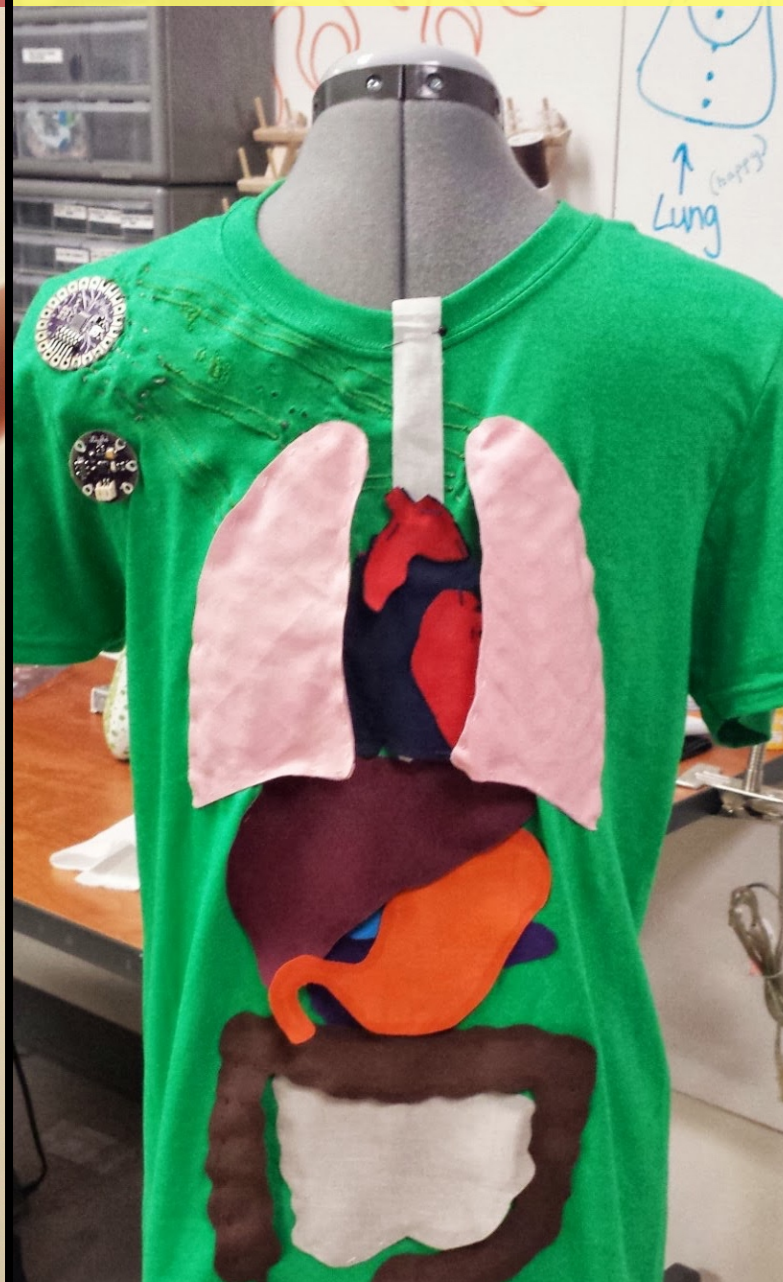
Prototype 1

Plush, Colorful, Interactive



Prototype 2

A New Lightweight Design



Prototype 3

The Current Design







Tinkering



Showcasing

Perceptibility

Tinkerability

Expressivity

Usability

Expressivity

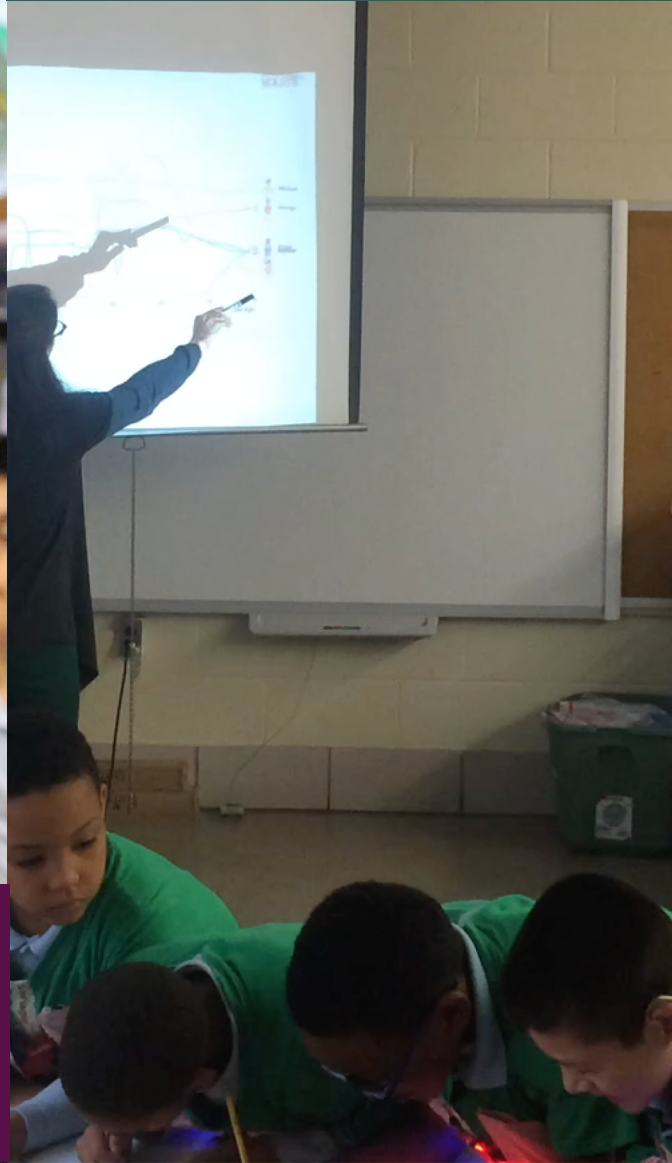
How designs enable individuals to make personal artifacts or designs based on interests, desires, or needs

Byrne et al., 2018; Clegg et al., 2017



Pop Culture

**Home-
work**



**Physical
Activity**



**More
support
needed for
fostering
creativity**

Byrne et al., 2018

Perceptibility

Tinkerability

Expressivity

Usability

Readiness to be used by others for play,
learning, or work

Usability

A group of children are gathered around a pregnant woman, looking at a large anatomical diagram of a human torso. The diagram is pinned to the woman's green t-shirt and shows internal organs like the heart, lungs, and kidneys. One child is pointing at the heart area. The background is a brightly lit room with other people and equipment, suggesting a museum or educational center.

Space

Touching

Addressing sensitive
topics

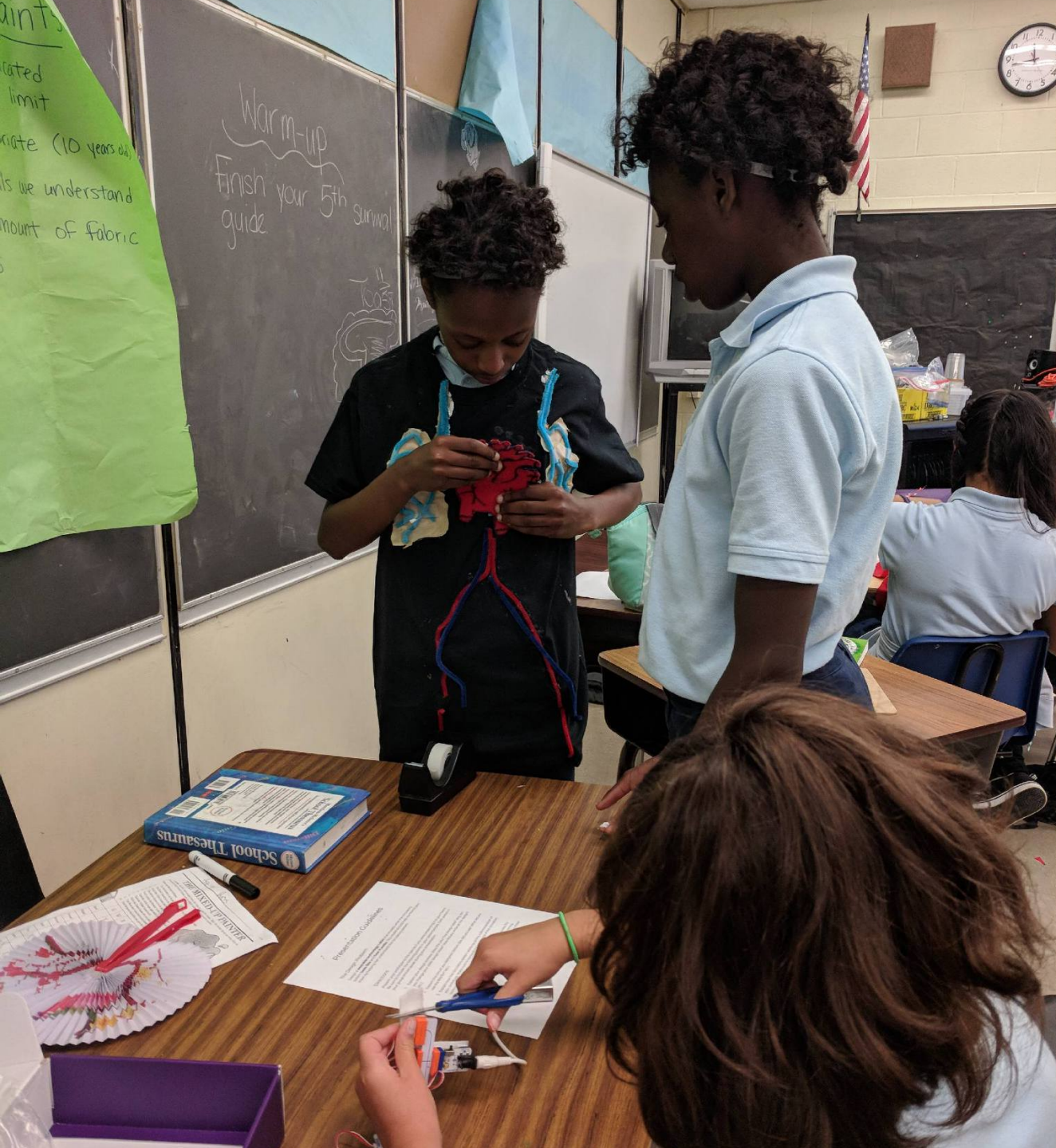
Rules & Norms

Perceptibility

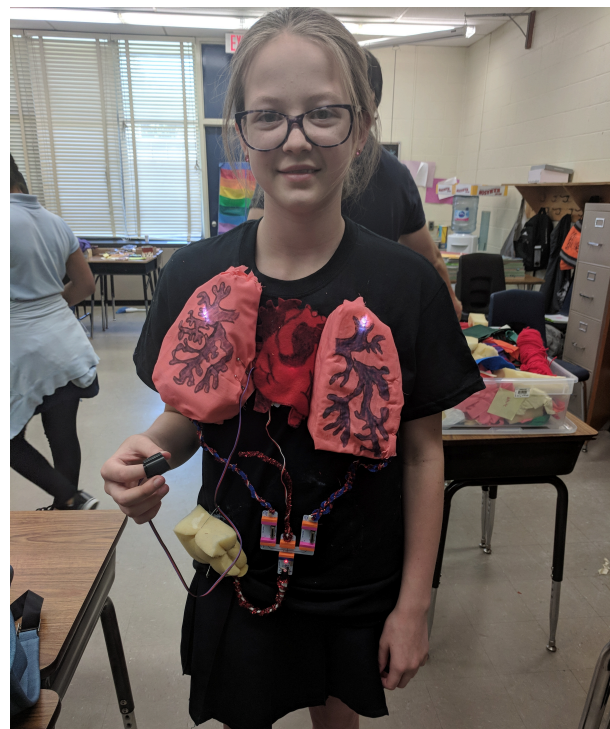
Tinkerability

Expressivity

Usability



Next Steps



ADVANCING SCIENCE LEARNING & INQUIRY EXPERIENCES THROUGH WEARABLES

BODYVIS & SHAREDPHYS TEAM

PROFESSORS



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Seokbin Kang



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GRAD STUDENTS

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