The "Drones Okay" Playground

An Educational Case Study in Tech Policy

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*Supported by University of Washington Tech Policy Lab

Value Sensitive Design Intro

Theoretical Constructs

- Tools and technology
- Human values
- Interactional stance
- Tripartite methodology
- Stakeholders
- Value tensions
- Co-evolving technology and social structure
- Multi-lifespan design
- Progress, not perfection

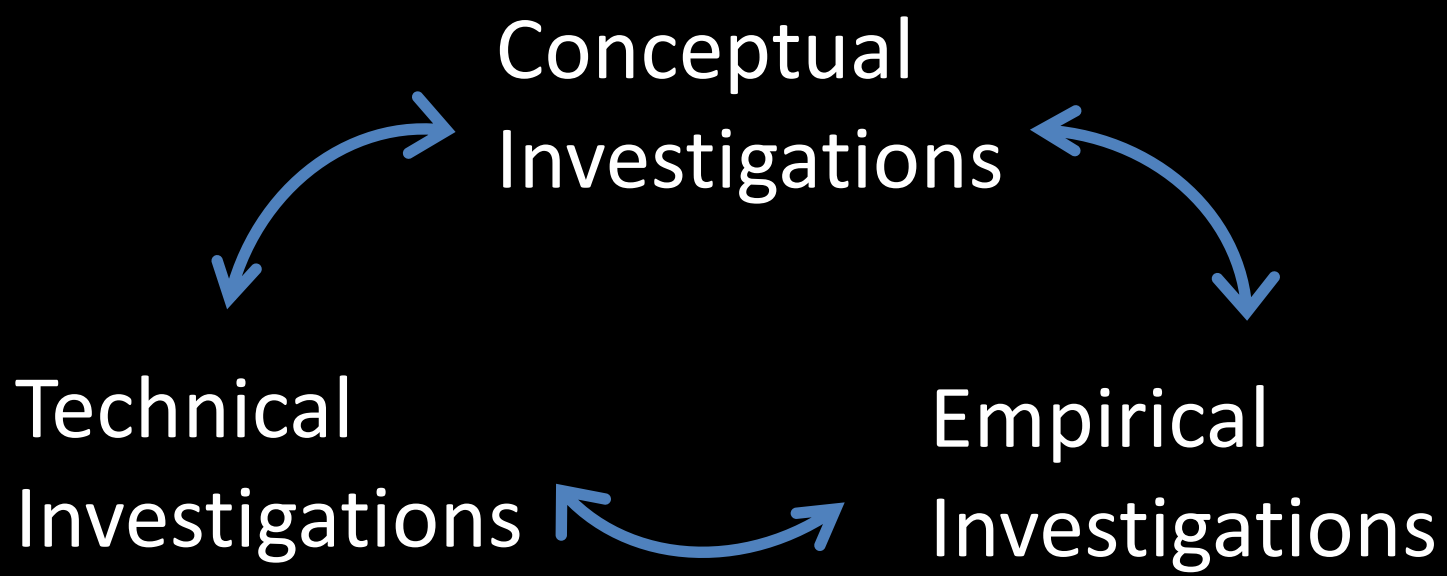
Value Sensitive Design Intro

Methods

1. Stakeholder analysis
2. Stakeholder tokens
3. Value source analysis
4. Co-evolve technology and social structure
5. Value scenario
6. Value sketch
7. Value-oriented semi-structured interview
8. Scalable assessments of information dimensions
9. Value-oriented coding manual
10. Value-oriented mock-up, prototype, or field deployment
11. Ethnographically informed inquiry on values and tech
12. Model of informed consent
13. Value dams and flows
14. Value sensitive action-reflection model
15. Multi-lifespan timeline
16. Multi-lifespan co-design
17. Envisioning Cards

Value Sensitive Design Intro

Design Process: Tripartite Methodology



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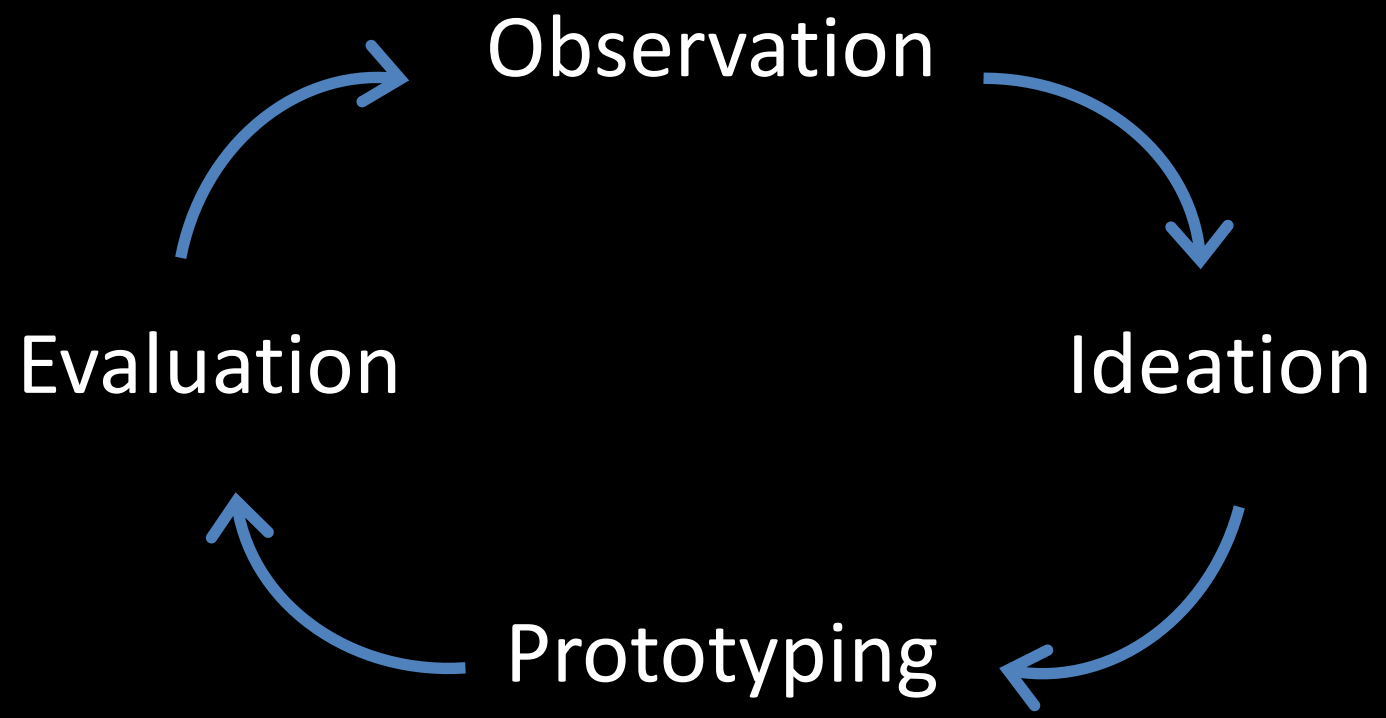
Design Process: Appropriation



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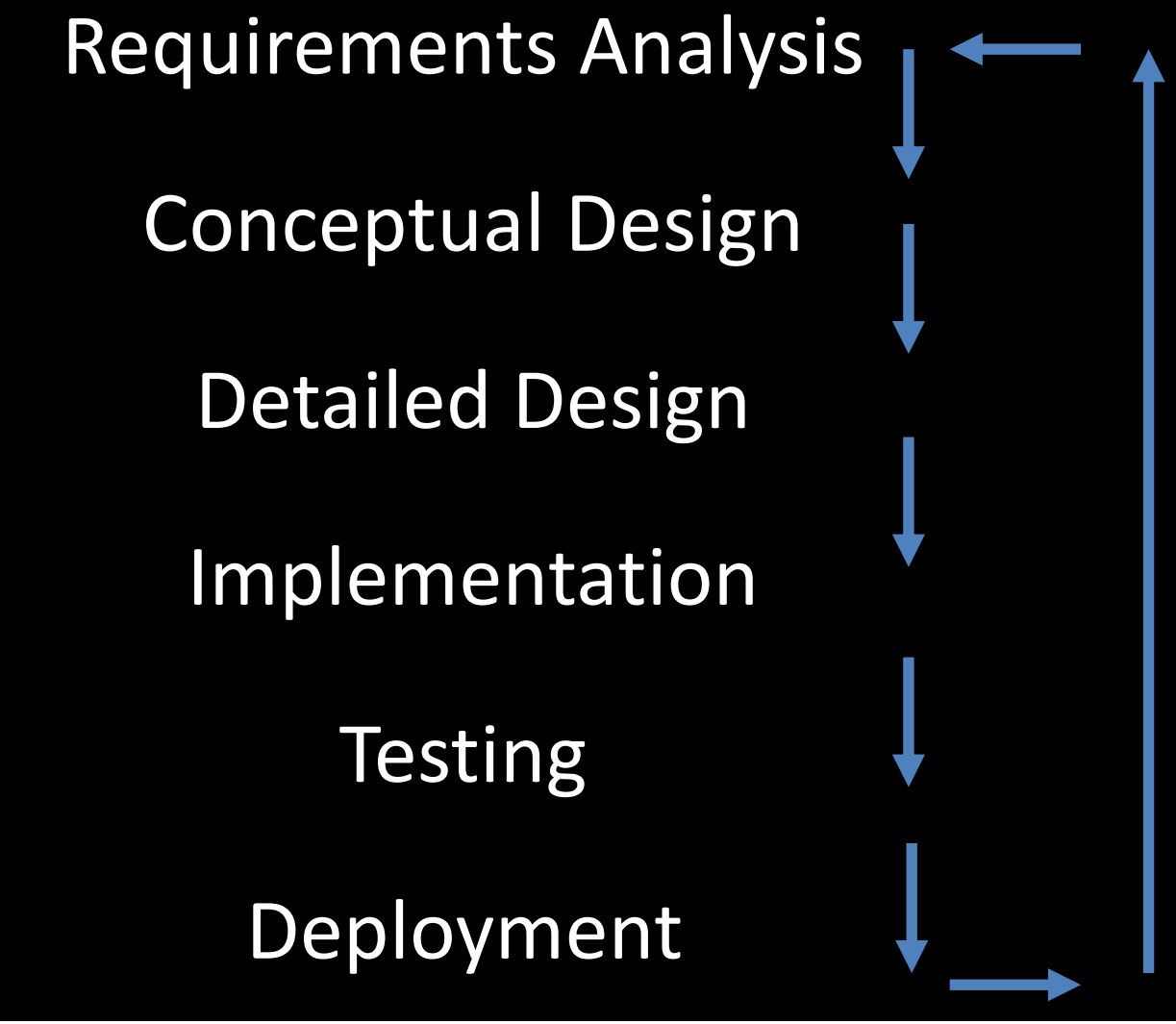
Design Process: Appropriation



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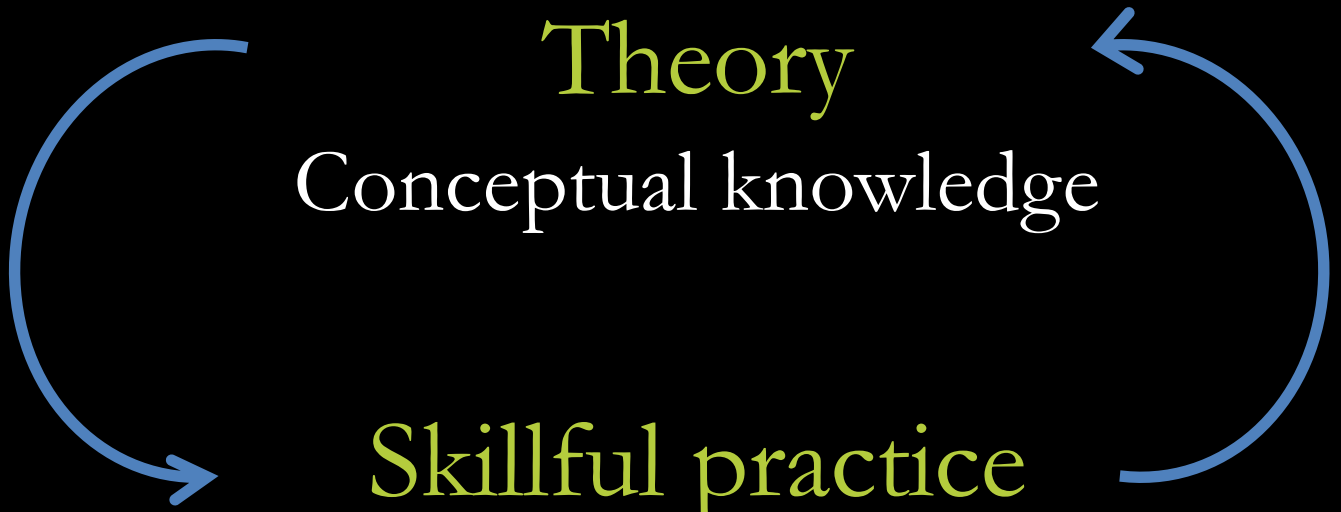
High-level Learning Areas



Skills for individual methods

Skills for appropriation and making design process


Sunday 17 May 2015
LOST
DRONE
A remote controlled helicopter was lost
on Sunday. Please could you contact
me if you find it. There is a REWARD
Email Jeremyjames@gmx.com


Drones & all other
motorized model
aircraft are
PROHIBITED by law
SMC 18.12.265
Drone use in this park is scaring nesting
osprey and Great Blue herons. This could
cause the birds to abandon nests and
baby chicks.
If you see anyone operating drones
or other motorized aircraft,
or otherwise disturbing nesting birds,
please call 911.

Design Activity

Drones "Okay" Playground

- We'll simulate this design activity – in abridged, simplified form
- Illustrates the use of method in a process – exposure (not depth)
- Invented in 2016 – used about 8 times in varied pedagogical formats (4 different instructors)

Design Activity

Format

Phase I (20 min)

Take on the student role – act and design as a learner

Phase II (10 min)

Pedagogical aims and commitments

Phase III (20 min)

A discussion of implications

“Drones Okay” Playground

You been contracted by a community organization to develop a plan for a “Drones Okay” playground. Develop a ”conceptual sketch” for the playground, considering such things as:

- Technical features of the drones and playground
- Guidelines and rules for using the playground

DESIGN PROMPT

Who would fly drones the playground (direct stakeholders) and who might be impacted by the ”drones okay” playground (indirect stakeholders)? Some possible stakeholders: children, teenagers, grandparents, dog walkers, people with disabilities, birds, nearby homes.

→ Identify a list of possible stakeholders. Indicate direct and indirect stakeholders.

Step #1: Direct and Indirect Stakeholder Analysis

What games , if any, might be played? How would you design the playground to be “safe” while enabling stakeholders to have “fun?” How would you define “safe” and “fun,” and what other values would your playground support?

→ Select two stakeholders. List several values and with whom or where they originate. Give brief working definitions.

Given your analysis of stakeholders and values, what are the “technical” and ”policy” requirements of the proposed playground? How do the requirements work together to shape human experience in desired ways?

→ Identify a technical requirement and a policy requirement which support or otherwise account for the stakeholders’ values.

Step #3: Co-evolution of Technology and Social Structure

Sketch your playground and write a brief value scenario, conveying how stakeholders will experience the playground. Include a direct and indirect stakeholder. Explicitly account for two or more values.

→ Using a sketch and bullet points outline the elements of a value scenario.

→ Please give a 2-minute presentation of your value scenario

STEP #5: PRESENTATIONS

1. How did your policy and technical design work together, with one supporting the other?
2. How did the indirect stakeholders influence your design?
3. What values motivated your design choices and how were they taken into account in your design?
4. What laws and regulations might you need to take into account in your design?

STEP #6: REFLECTIVE QUESTIONS

Pedagogical Approach

VSD + Drones Takeaways

1. *There are methods.* Use them. Frequently and throughout the product development (design and engineering) process.
2. Use *human values* as a criteria for evaluating system performance (alongside of other criteria such as reliability).
3. *Co-evolve technology and social structure* (policy).

Pedagogical Approach

Commitments

1. *Action, then reflection* - Donald Schön's approach to reflective practice. Practice, reflect, and try again.
2. *Work concretely*. Develop a concrete, specific solution.
3. *Progress, not perfection*. Okay to work with incomplete understanding of values, stakeholders, and context.
4. *Exposure to method, while addressing a complex design situation*. Scaffold the design process.

Pedagogical Approach

Address Questions

1. *Stakeholders*. Who are the direct and indirect stakeholders of the target technology
2. *Values*. What values might stakeholders hold and what values might be implicated by the target technology?
3. *Value tensions*. What value tensions emerge and how might they be addressed?
4. *Policy*. What policy elements exist in sociotechnical context? How might those policy elements afford or constrain technical development?
5. *Expanded design space*. How might the policy elements and technological features work together to meet engineering requirements?

Pedagogical Approach

Case Study Format

Students take a *design stance* and develop a concrete design concept – engaging both technology and policy (expanded design space)

1. Background material
2. Design prompt
3. Suggested design process
4. Discussion questions

Pedagogical Approach

Support Instructors

1. Simplicity for instructors – 30 min commitment
2. Topical appeal – student interest
3. Appropriation – readily changed and extended
4. Depth – body of material
5. Adaptability – flexible format

Moving Forward

Four Case Studies: Catalyzing Moral and Technical Imagination

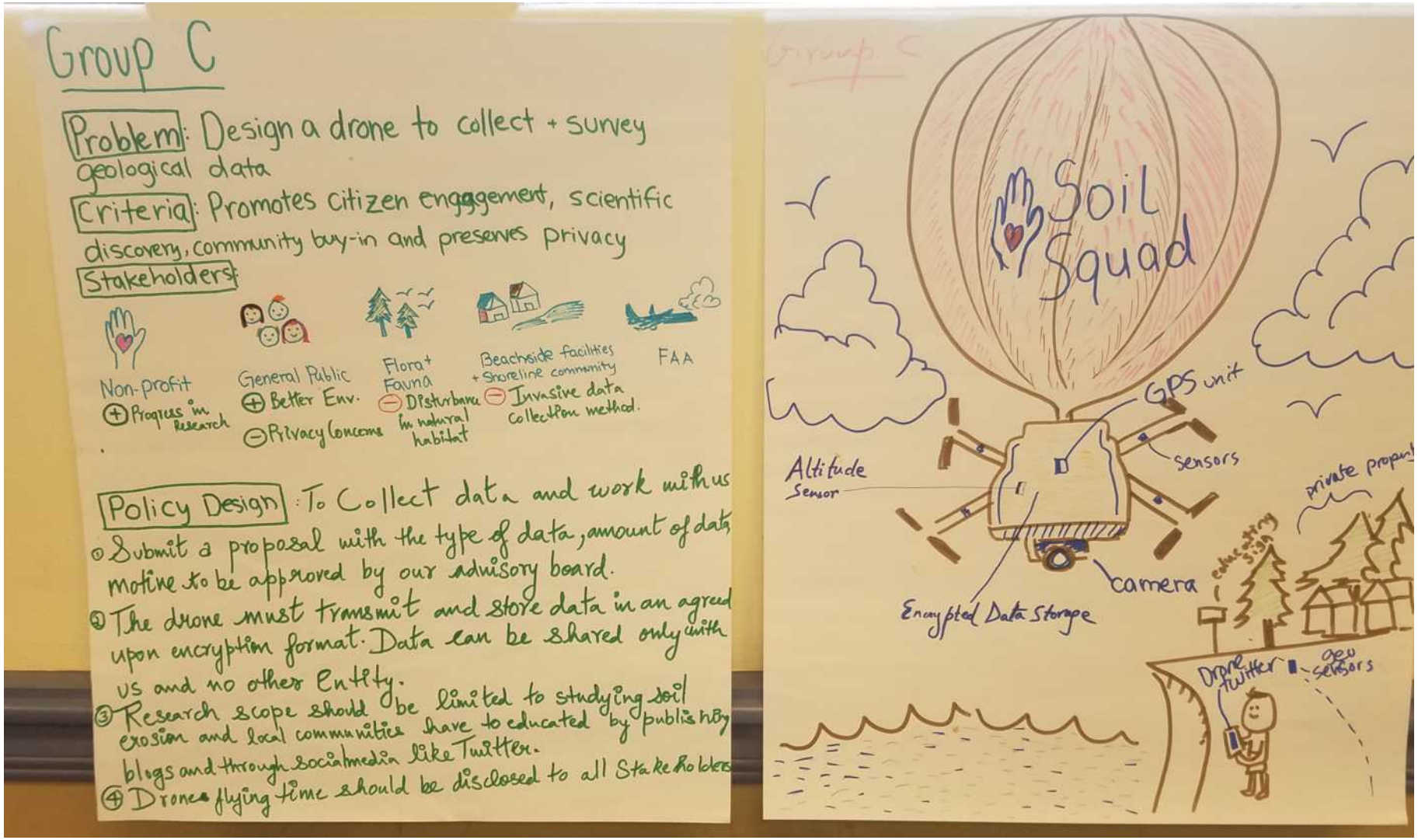
1. Drones Okay Playground: Fun with Personal Drones
2. Workforce management: Scheduling Call-Center Workers
3. NeighborSpin: Sharing Laundry Facilities
4. Internet of Things: Gaslighting and the Smart Home

Moving Forward

Next Steps …

1. Dissemination
2. Supporting appropriation and development
3. Keeping them topically current
4. Use outside of classroom (community contexts)
5. Community of practice in value sensitive design pedagogy

See project by Eva Eriksson and colleagues!



Student work. An example in-class deliverable showing a solution to the design of a drone for surveying geological systems through citizen science projects. Design prompt and process adapted from Case Study 1: "Does Okay" Playground: Fun with Personal Drones. (Instructor credit: Prof. Megan Finn, The Information School, University of Washington, 2017).