Lecture 4, Jan 18, 2022

Community Finding

- 4 Frameworks:
    1. Design for technology: Address constraints such as budget, time, functionality, established by a client
    2. HCD (Human-Centered Design) for users: Emphasizes users' needs, desires and cultural location mainly through ergonomics and aesthetics
    3. HCD for communities: Considers low-income and underserved communities as users; incorporates listening to users, accommodation of their needs and desires and attention to their situations and their resources, limitations, and opportunities
    4. Design for social justice: Explicitly motivated by the goal of equitable distribution of opportunities and resources
- Capability to approach to humanity/social justice:
    - Capabilities are defined by the community vs 10 central human capabilities that make life livable
    - People have the potential to do and be and capabilities are the "real freedoms" to do that (i.e. they have all the required means necessary to do so)
    - How might design enable being or doing?
    - The 10 central capabilities:
        1. Life
        2. Bodily health
        3. Bodily integrity
        4. Space for emotion
        5. Space for senses, imagination, and thought
        6. Practical reason
        7. Affiliation
        8. Other species
        9. Play
        10. Control over one's environment (politics)
    - We should consider whether our design enable or violate these capabilities
    - Don't ask a community "what can I fix for you" because that violates their control over their environment
- High authority sources are controlled (e.g. journals and handbooks are reviewed)
- Medium authority sources are curated (e.g. conference proceedings and journalistic media)
- Community sources are unknown, could be controlled or uncontrolled
    - These are the sources that we need to "use credibly" – harder to use than the high authority sources
    - However these are local, specific, and timely and can be more relevant depending on the case
    - Make use of the position of the source, or make clear of their bias
    - Keeping their bias in view distinguishes their opinions from yours

Lecture 7, Jan 24, 2022

- Remember:
    1. Do **not** ask "what is your problem?"
    2. Do **not** promise to do something for them
    3. Be polite and respectful
    4. Do not push your ideas; listen to see if they fit
    5. Communicate professionally
    6. Don't be overly pushy; respect their schedules
    7. Put yourself in the shoes of the stakeholder

Lecture 8, Jan 28, 2022

Crafting a Group Introduction

- Purpose
    - Be honest and transparent
    - "We are hoping to get to know a community that might be interested in developing a project with us"
- Attention
    - Give them a reason to care
    - "I worked with a food bank in my home town and was able to reduce waste"
- Sense of good will
    - Create an opening for them or for conversation
    - "We would appreciate an opportunity to speak with you about "
- For phone calls, structure it, but don't script a conversation
    1. Introduce yourself and your reason for calling
    2. Create space for response – get into a conversation
    3. Plan points to say
    4. Listen to their responses and build off them
    5. Offer a way to go deeper or a way out
    6. Seek a "good" time for more detailed conversation
- When working with a vulnerable community:
    1. Will they be harmed if you develop a project that does not go forward?
    2. Will their sense of their worth diminish if the project does not go forward?
    3. Do you have or are you able to acquire empathy and competence to interact with them?

Lecture 11, Feb 7, 2021

Root Cause Analysis

- Need to go from an experienced discomfort to an actual engineering opportunity characterized by what the actual cause is
- Why is this happening?
    - Why is that happening?
- How can we frame this in engineering design?
    - How do we define engineering design? What DfXes might be relevant?
- Example: Nike Flyease – getting in and out of shoes without hands is annoying – maybe we should design a shoe for exactly that behaviour
    - Identify the pieces of the system and their interactions
- What is engineering design to you? How do you show that you've actually done engineering design?

Lecture 12, Feb 11, 2022

Writing the RFP

- What must a team do to take responsibility?
    1. Build requirements
    2. Define the opportunity so the designers can understand it
    3. Explain the community so the designers can engage with them
    4. Show due diligence through reference designs and research to define the opportunity in context
- The abstract answers:
    1. What is the opportunity? (Purpose)
    2. Where does this opportunity fit? (Backgrounds)
    3. What is important to success? (Requirements)

    4. What have we got to go on? (Reference Designs)
- Write the abstract after the rest of the RFP is done!
- The abstract is *not* the introduction – it's a summary
- The order of these questions can vary, and the abstract's structure can be different from the RFP's

Lecture 13

Requirements Checklist

1. Is the Core Intention of your opportunity present?
   - The engineering opportunity should still reflect the experienced discomfort in the first place
   - You shouldn't make the thing so complicated that you lose your original intention
2. Have you determined your high-level and detailed objectives?
   - High-level objectives may not be directly measurable or contextualized; they sound like DfXes
     - They may simply be a value that you want to bring into the project
     - Kind of like stakeholder statements
     - Are our values in our high-level objectives?
   - Detailed objectives brings the design values into the context of the opportunity, specifying it with the language of the stakeholders
     - Detailed objectives make your high-level objectives: specific (to the context/your stakeholders), measurable (enable verification), and able to be connected to relevant research such as codes and standards
     - Use DfX literature (e.g. handbooks) to give you benchmarks and metrics
3. Have you checked the alignment of your objectives and metrics?
   - Do you metrics actually measure your objectives?
   - Does the metric actually measure the *core concept* in the detailed metric?
   - If it does not, then you haven't found the right metric, or you need to reframe the way you look at the detailed metric
   - If a proxy metric is used (e.g. hours required for training as a metric for "use without assistance"), you need to explain why
   - Keep in mind that the systems of measurement of the community may be different
4. Does your requirements visualization have everything connected with all the necessary elements?
   - Connect stakeholder interests to objectives, and then connect to metrics, and constraints and criteria
   - Make sure you don't have stakeholders that are not reflected, or objectives without metrics to measure them
   - Visualization includes detailed objectives; high-level objectives are like the stakeholders parts
   - The representation doesn't need to include details for the metrics; but those details need be to included elsewhere
   - Requiring cross-referencing is okay

Lecture 14, Feb 14, 2022