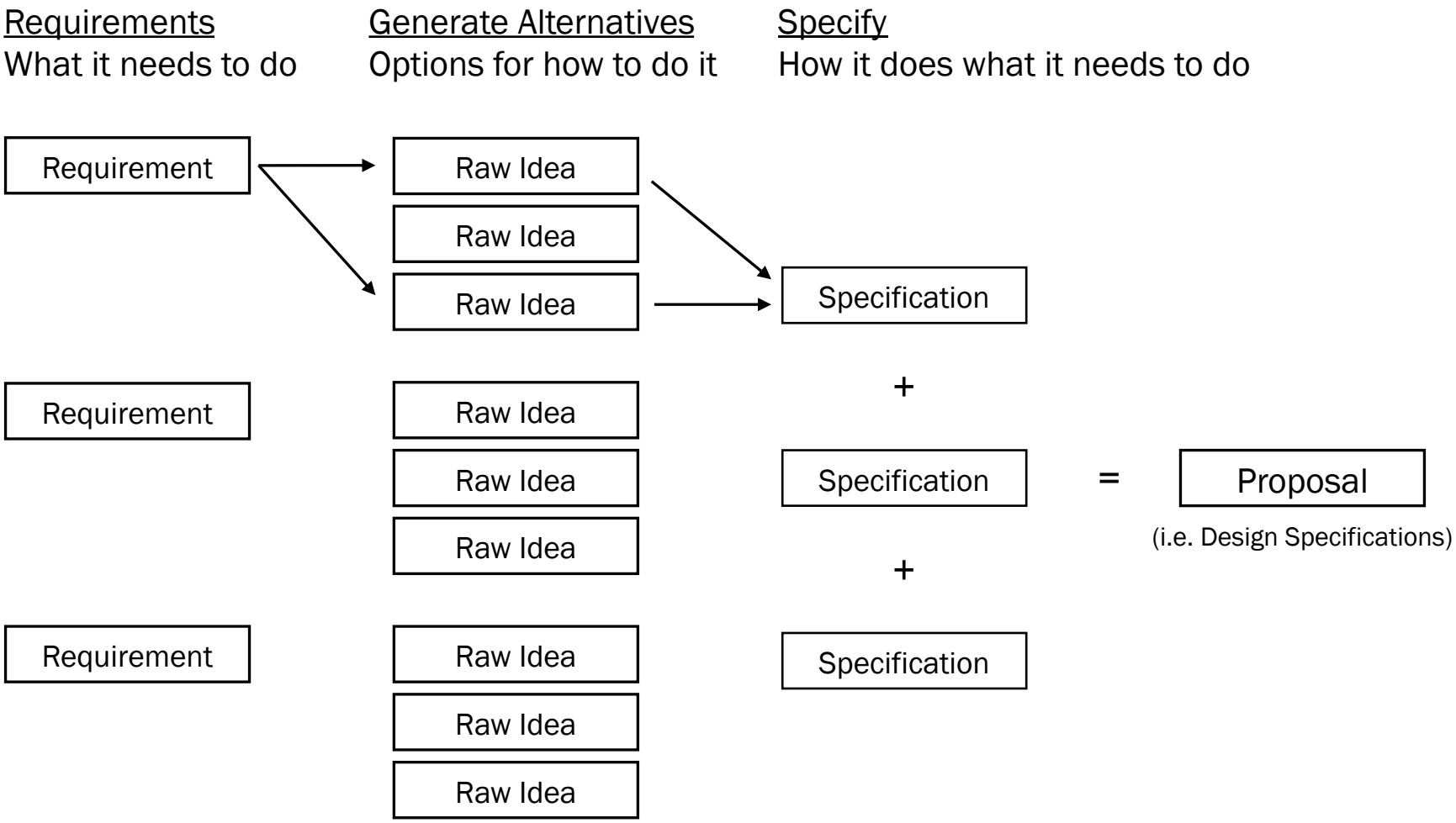
Generate Alternatives

2020.6.20

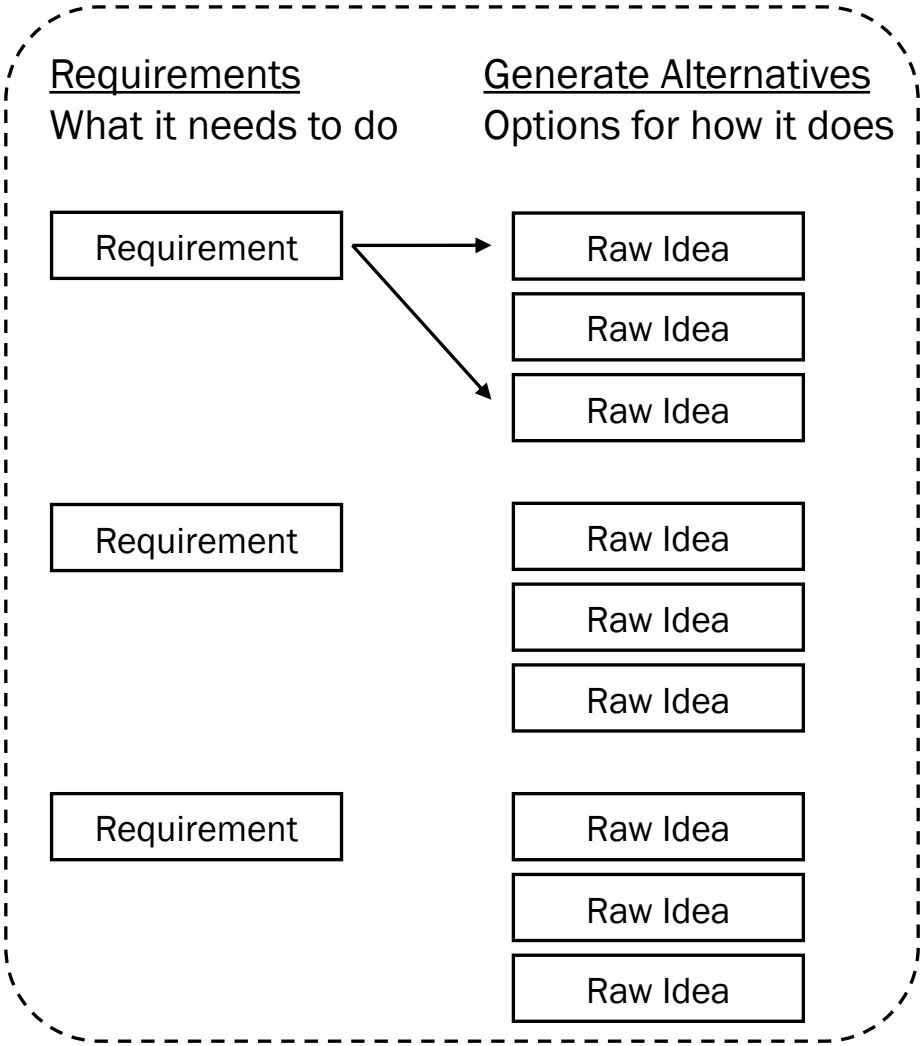
Phase 3


Requirements
What it needs to do
Generate Alternatives
Options for how to do it
Specify
How it does what it needs to do
Requirement
Raw Idea
Raw Idea
Raw Idea
Specification
+
Requirement
Raw Idea
Raw Idea
Raw Idea
Specification
=
Proposal
(i.e. Design Specifications)
+
Requirement
Raw Idea
Raw Idea
Raw Idea
Specification

Requirements

- Select around 10 key requirements to focus on

Generating Alternatives

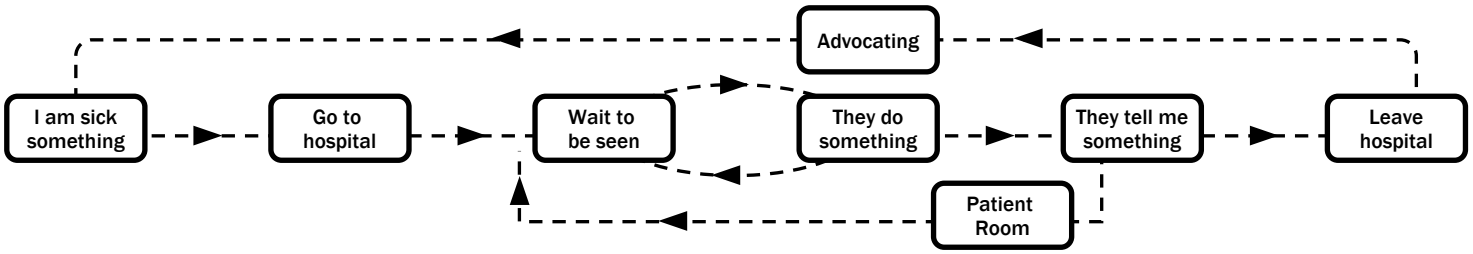


Broad Interaction Map

Broad Interaction Map

Experience Journey Map

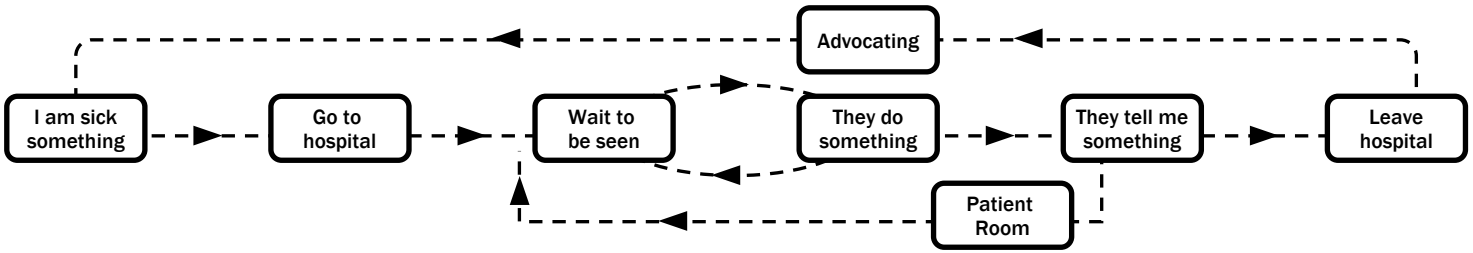
(PHASE 1)



	I am sick something	Go to hospital	Wait to be seen	They do something	They tell me something	Leave hospital
Patient View	• Should I go to the hospital? • Which hospital? • Is there an alternative to the ER? • What should I bring with me? • How do I get there? • Am I sick enough for the hospital? • What can I expect?	• Where do I go? • Who do I talk to? • Can I go? • What happens if I leave? • Is it clean? • Is it safe? • What is the best way to enter the system?	• What's going to happen? • Is this serious? • How long will this take? • How/when can I talk to my family • How long will I have to stay here? • Do I have to be moved?	• What is that? • How long will I wait? • How serious is the problem? • Where's my stuff? • Can I afford this? • When will __ happen? • How long will this take? • Is everything according to schedule?	• Where is everything? • What is wrong with me? • When will __ happen? • Where is my staff? • How will they find me? • What have you found out so far? • Why are they here? • Who are they?	• How much is this going to cots? • Am I better? • Can I leave?	• What help do I need to get better? • Do I need to come back? • How can I stay healthy? • What are the prolonged costs?
Hospital View	• Will they choose Depaul?	• Did they com through the system in the right way?	• Who's next? • Is this serious? • How long have you been there? • Who are you?	• Where will be put them? • Are there existing health issues I should know about? • Who's next? • Who is this (about family)? • Are they allowed? • What have they been asked?	• Who is this (about family)? • Are they allowed? • Is this serious (call light)? • Can it wait? • Where did they go? • Has the doctor/nurse been here? • Are there new treatment orders? • Who's next?	• When will the bed be free? • How will they get home?	• Will they be back?

Experience Journey Map

(PHASE 1)



Patient View

- Should I go to the hospital?
- Which hospital?
- Is there an alternative to the ER?
- What should I bring with me?
- How do I get there?
- Am I sick enough for the hospital?
- What can I expect?

- Where do I go?
- Who do I talk to?
- Can I go?
- What happens if I leave?
- Is it clean?
- Is it safe?
- What is the best way to enter the system?

- What's going to happen?
- Is this serious?
- How long will this take?
- How/when can I talk to my family
- How long will I have to stay here?
- Do I have to be moved?

- What is that?
- How long will I wait?
- How serious is the problem?
- Where's my stuff?
- Can I afford this?
- When will __ happen?
- How long will this take?
- Is everything according to schedule?

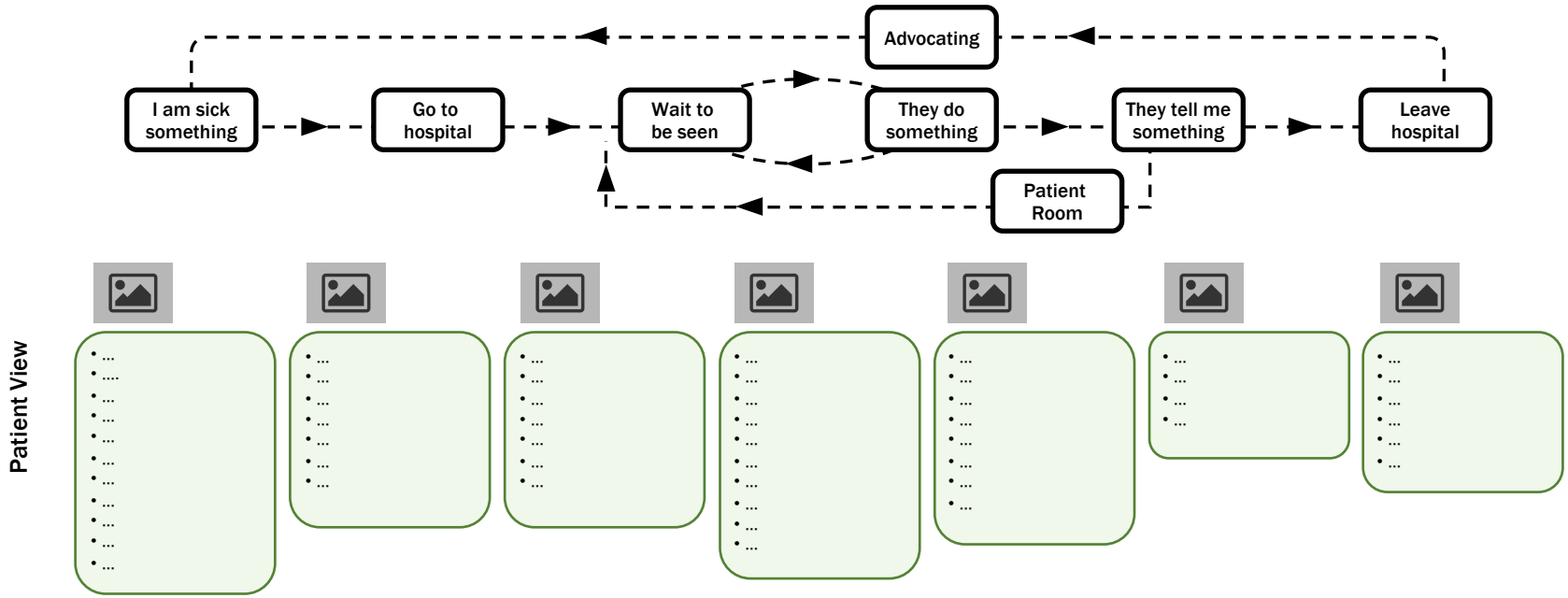
- Where is everything?
- What is wrong with me?
- When will __ happen?
- Where is my staff?
- How will they find me?
- What have you found out so far?
- Why are they here?
- Who are they?

- How much is this going to cots?
- Am I better?
- Can I leave?

- What help do I need to get better?
- Do I need to come back?
- How can I stay healthy?
- What are the prolonged costs?

(Before scenarios) |

Broad Interaction Map



(Before scenarios) | (After scenarios)

Broad Interaction Map

Cooper & Reimann

p.76

- What is scenario-based design?
- What does Carroll's model lack?

fluidity; any member of the design team can modify them at will. As Carroll states in his book, *Making Use*:

> Scenarios are paradoxically concrete but rough, tangible but flexible . . . they implicitly encourage 'what-if?' thinking among all parties. They permit the articulation of design possibilities without undermining innovation. . . . Scenarios compel attention to the use that will be made of the design product. They can describe situations at many levels of detail, for many different purposes, helping to coordinate various aspects of the design project.

Carroll's use of **scenario-based design** focuses on describing how *users accomplish tasks* (Carroll, 2001). It consists of an environmental *setting* and includes *agents* or *actors* that are abstracted stand-ins for users, with role-based names such as Accountant or Programmer.

Although Carroll certainly understands the power and importance of scenarios in the design process, the authors see two problems with scenarios as Carroll approaches them:

- ✓ Carroll's scenarios are not concrete enough in their representation of the human actor. It is impossible to design appropriate behaviors for a system without understanding in specific detail the users of the system. Abstracted, role-oriented models are not sufficiently concrete to provide understanding or empathy with users.
- ✓ Carroll's scenarios jump too quickly to the elaboration of tasks without considering the user's goals and motivations that drive and filter these tasks. Although Carroll does briefly discuss goals, he refers only to *goals of the scenario*. These goals are somewhat circularly defined as the completion of specific tasks. Carroll's scenarios begin at the wrong level of detail: User goals need to be considered before user tasks can be identified and prioritized. Without addressing human goals, high-level product definition becomes difficult.

The authors believe that the missing ingredient in scenario-based design methods is the use of personas. A persona provides a sufficiently tangible representation of the user to act as a believable agent in the setting of a scenario. This enhances the designer's ability to empathize with user mental models and perspectives. At the same time, it permits an exploration of how user motivations inflect and prioritize tasks. Because personas model *goals* and not simply tasks, the scope of the problem that scenarios address can also be broadened to include product definition. They help answer the questions, "What should this product *be*?" and "How should this product look and behave?" The authors address the issues surrounding task-based scenarios with the introduction of **persona-based scenarios** — scenarios incorporating the use of personas and goals.

Cooper and Reimann. *About Face 2.0,* Chapter 6 "Scenarios: Translating Goals into Design"

Broad Interaction Map

- Personas

- Start with personas
  - For each primary persona, what are their expectations?

p.80

- ✓ General expectations and desires each may have about the experience of using the product
- ✓ Behaviors each will expect or desire from the product
- ✓ Attitudes, past experiences, aspirations, and other social, cultural, environmental and cognitive factors that influence these desires

  - Refer to persona descriptions, or language patterns in users' description of usage patterns (p.81)

Broad Interaction Map

- Personas

- Start with personas
  - For each primary persona, what are their expectations?
  - What are their goals and needs?
    - Do the same for secondary personas, etc.

NEEDS?

GOALS?

Broad Interaction Map

- Personas
- Points of Interaction

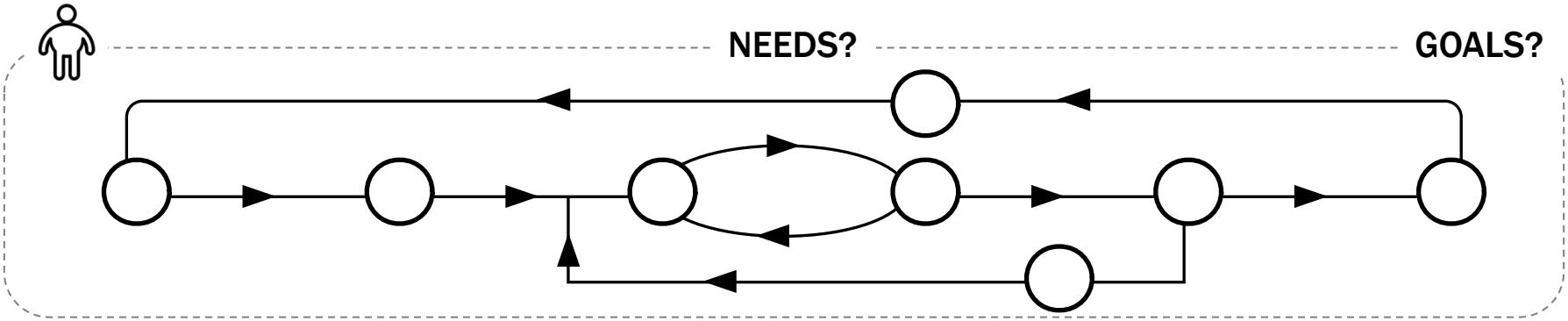
- Determine points of interaction
  - Consider the broad interaction context
    - How long is the product used?
    - Is it used the whole time?
    - Who else is involved?
    - What is the setting in which the product is used?
    - Where does it live before, during, and after its use?
    - ➤ Cooper and Reimann, Translating Goals into Design, p.80

NEEDS? **GOALS?**

Broad Interaction Map

- Personas
- Points of Interaction

- Determine points of interaction
  - Consider the broad interaction context
  - What are the general interaction sequences associated with using your product/service?
  - What are the primary activities your personas will accomplish with your new product/service?

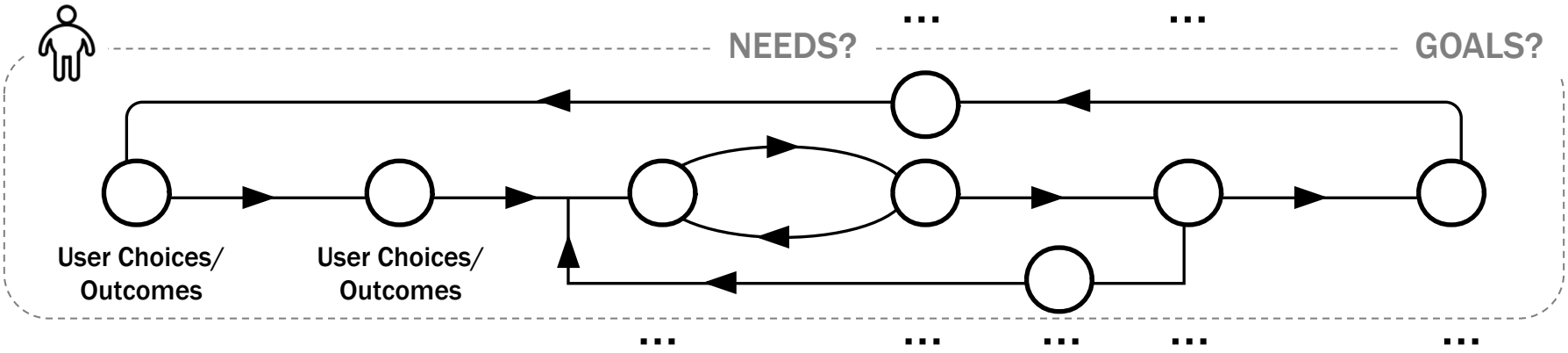


Broad Interaction Map

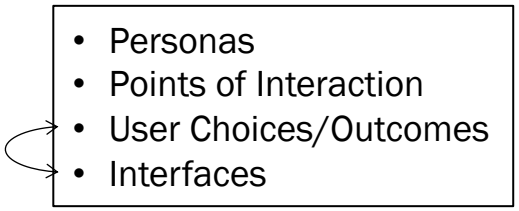
- Personas
- Points of Interaction
- User Choices/Outcomes

- What are the user choices at each point of interaction?
- What are the associated outcomes?
- List clearly:

Choice	Outcome
	Outcome
Choice	Outcome
	Outcome



Broad Interaction Map



- For each interaction, create corresponding interfaces
  - What information do your users need at each step of the sequence?
    - Information to take primary actions
    - Information to understand outcomes
  - What options should they have available to them?
  - How does the product interface provide this information? Does it make the important options available?
  - What options should not be available? How are these connections visually represented in your map?

*Various interactions may relate to/require multiple interfaces

Broad Interaction Map

- Personas
- Points of Interaction
- User Choices/Outcomes
- Interfaces
- Elements, Form

- Interface elements
  - Displays, information/output elements
  - Controls, input elements

p.84

STEP 3: DEFINING FUNCTIONAL AND DATA ELEMENTS

Functional and data elements are the visible representations of functions and data in the interface. They are the concrete manifestations of the functional and data needs identified during the Requirements Definition phase. Where those needs were purposely described in terms of real-world objects and actions, functional and data elements are described in the language of user interface representations:

- ✓ Panes, frames, and other containers on screen
- ✓ Groupings of on-screen and physical controls
- ✓ Individual on-screen controls
- ✓ Individual buttons, knobs, and other physical affordances on a device
- ✓ Data objects (icons, listed items, images, graphs) and associated attributes

Cooper and Reimann. *About Face 2.0,* Chapter 6 "Scenarios: Translating Goals into Design"

Broad Interaction Map

- Personas
- Points of Interaction
- User Choices/Outcomes
- Interfaces
- Elements, Form

- Interface elements
- Form, scale, proportion
  - ➤ See "Contextual use scenarios" in Cooper and Reimann, Ch. 6
  - ➤ Generating raw ideas: see *Phase 3 – Develop* description & "Role-Playing" in recommended design methods

p.84

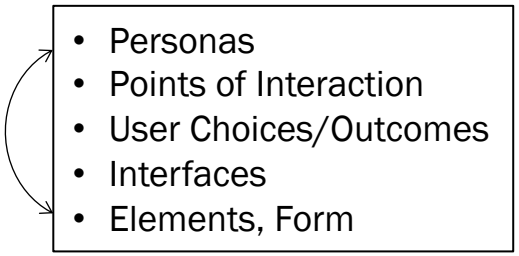
STEP 1: DEFINING FORM FACTOR AND INPUT METHODS

The first step in creating a framework is defining the form factor of the product you'll be designing. Is it a Web application that will be viewed on a high-resolution computer screen? Is it a phone that must be small, light, low-resolution, and visible in the dark and as well as in bright sunlight? Is it a kiosk that must be rugged to withstand a public environment with thousands of distracted, novice users? What are the constraints that each of these imply for any design? Answering these questions sets the stage for all subsequent design efforts.

After you have defined this basic *posture* (see Chapter 8) of the product, you should then determine the valid input methods for the system: Keyboard, mouse, keypad, thumboard, touch screen, voice, game controller, remote control, and many other possibilities exist. Which combination is appropriate for your primary and secondary personas? What is the *primary* input method for the product?

Cooper and Reimann. *About Face 2.0,* Chapter 6 "Scenarios: Translating Goals into Design"

Broad Interaction Map



- Interface elements
- Form, scale, proportion
- Consider accessibility in your design!
  - How does considering accessibility create new possibilities?
  - What does the consideration of different genders teach you to consider?
  - What can you learn from left- and right-handed people, large people, small people, people whose bodies occupy space differently, children, etc.?
  - What about color blindness? Other distinct characteristics?
  - Have you considered safety?
  - Do you prevent unsafe actions from being taken?

➤ Hendren, *All Technology Is Assistive: Six design rules on "disability"*

➤ Cooper and Reimann, *Designing Look and Feel*

Broad Interaction Map

- Personas
- Points of Interaction
- User Choices/Outcomes
- Interfaces
- Elements, Form
- Sub-Interfaces

- Sub-Interfaces
  - Spatially vs. temporally arrayed
    - Communication
  - Method
    - First determine framework & form of primary interface!

p.85

STEP 4: DETERMINING FUNCTIONAL GROUPS AND HIERARCHY

After you have a good list of top-level functional and data elements, you can begin to group them into functional units and determine their hierarchy (Shneiderman, 1998). Because these elements facilitate specific tasks, the idea is to group elements to best facilitate the persona's flow (see Chapter 9) both within a task and between related tasks. Some issues to consider include:

The most important initial step is determining the top-level container elements for the interface, and how they are best arranged given the form factor and input methods that the product requires. Containers for objects that must be compared or used together should be adjacent to each other. Objects representing steps in a process should, in general, be adjacent and ordered sequentially. Use of interaction design principles and patterns is extremely helpful at this juncture; Chapter 7 and Part II of this book provide many principles that can be of assistance at this stage of organization.

Cooper and Reimann. *About Face 2.0,* Chapter 6 "Scenarios: Translating Goals into Design"

Broad Interaction Map

- Personas
- Points of Interaction
- User Choices/Outcomes
- Interfaces
- Elements, Form
- Sub-Interfaces

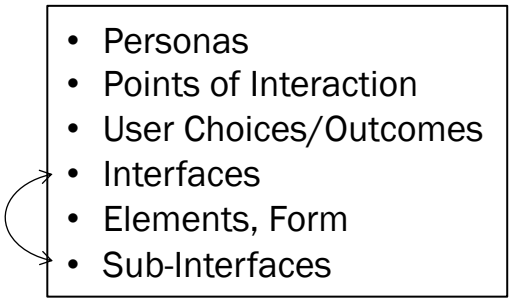
- Sub-Interfaces
- Grouping
  - Facilitate perception and understanding
    - ➤ Cooper and Reimann, Ch.19 *Designing Look and Feel*
    - ➤ Wallschlaeger and Busic-Snyder, *Selections on Grouping*
    - ➤ *Wallschlaeger and Busic-Snyder, Selections on Layout*
  - Group by function & to optimize user flow

p.85

- ✓ Which elements need a large amount of real estate and which do not?
- ✓ Which elements are *containers* for other elements?
- ✓ How should containers be arranged to optimize flow?
- ✓ Which elements are used together and which aren't?
- ✓ In what sequence will a set of related elements be used?
- ✓ What interaction patterns and principles apply?
- ✓ How do the personas' mental models affect organization? (Goodwin, 2002)

Cooper and Reimann. *About Face 2.0,* Chapter 6 "Scenarios: Translating Goals into Design"

Broad Interaction Map



- Sub-Interfaces
- Grouping
- Overall interface framework
  - ➤ Sketching raw ideas: Cooper and Reimann, Ch.6, p. 86

Broad Interaction Map

- States

- Personas
- Points of Interaction
- User Choices/Outcomes
- Interfaces
- Elements, Form
- Sub-Interfaces
- States

Functions

1. Listen to a song (content)

(2. Record a sound)

Actions

1. Start
2. Stop
3. Change position (F, R, FF, RR)
4. Pause
5. Change content
6. Activate

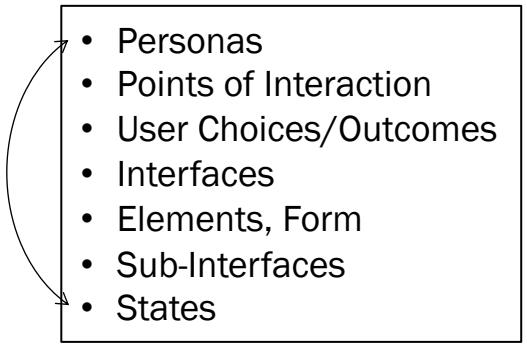
Displays
+
Controls

States

1. Position in context
2. Presence of content
3. On/Off power (plugged in, vs. “on”)
4. “Displaying” content
5. Progressing through content (forward, background)

Linder, Benjamin. Develop Phase Kickoff, Experience Design, Interaction and Interaces. April 2019. https://canvas.instructure.com/courses/1518820/files/76589103. Powerpoint Presentation.

Broad Interaction Map

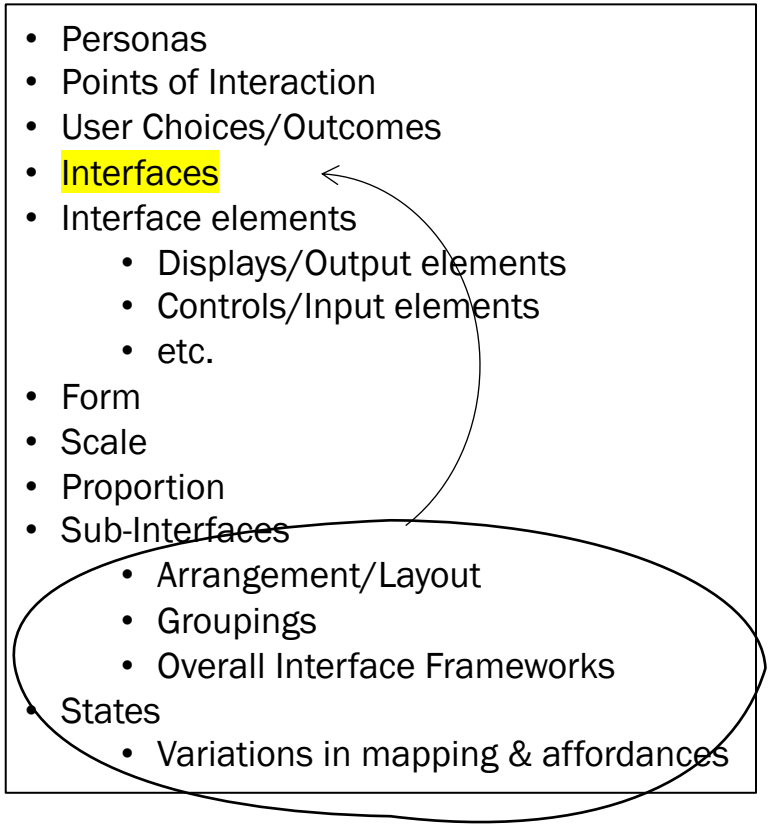


- States
  - What states/modes are required?
  - How do users determine the state?
  - How do users know the different state possibilities?
  - How do users know which actions to take to change the state?

- Strive for natural mappings and affordances!
  - How to elicit desired behavior
    - ➤ Cooper and Reimann, Ch.19 *Designing Look and Feel*
    - ➤ Norman, *The Design of Everyday Things,* User-Centered Design

Broad Interaction Map

- Final things to include:
  - Show relationships
  - Demonstrate overall context
  - Code using icons, colors and labels to distinguish/relate relate multiple levels of information
  - Indicate which persona(s) your map represents.
  - Everything below “Sub-interfaces” must also be determined for the primary interface.



Generating Alternatives

Generating Alternatives

1) Generate raw ideas for potential embodiments at <u>each</u> level/aspect of the **Broad Interaction Map.**

- ➤ Personas
- ➤ Points of Interaction
- ➤ User Choices/Outcomes
- ➤ Interfaces
- ➤ Elements, Form
- ➤ Sub-Interfaces
- ➤ States

Generating Alternatives

- Personas
- Points of Interaction
- User Choices/Outcomes
- Interfaces *
- Interface elements *
    - Displays/Output elements *
    - Controls/Input elements *
    - etc. *
- Form *
- Scale *
- Proportion *
- Sub-Interfaces *
    - Arrangement/Layout *
    - Groupings *
    - Overall Interface Frameworks *
- States *
    - Variations in mapping & affordances *

Raw Ideas should be created at each level & aspect of the Broad Interaction Map

Generating Alternatives

1) Generate raw ideas for potential embodiments at <u>each</u> level of the **Broad Interaction Map.**

- Personas
- Points of Interaction
- User Choices/Outcomes
- Interfaces
- Elements, Form
- Sub-Interfaces
- States

2) Express **raw ideas** using sketch models.

3) Remember to tie back to **requirements.**

User	Need	Requirement	...
		Requirement	...
	Need	Requirement	...
		Requirement	...
User	Need	Requirement	...
		Requirement	...

Upcoming

- Tuesday 23-Jun @ 9:00 AM
  - Benchtop Review (submission & class)
- Friday 26-Jun @ 12:00 noon
  - Wallschlaeger and Busic-Snyder Readings
- Saturday 27-Jun @ 9:00 AM
  - Specifications Lecture

Phase 3 Benchtop Review

Submission, due Tuesday 23-Jun

1. Broad Interaction Map
   - Requirements for Interaction Map= every slide of this PPT
2. Raw Ideas for each level/aspect of Broad Interaction Map
   - Try to get to sub-interfaces if possible
     - Focus on perfecting the details & design of your primary interface
   - Explore varied/inclusive functioning in your raw design concepts (slide 19)

Phase 3 Benchtop Review

Raw Ideas

- Personas
- Points of Interaction
- User Choices/Outcomes
- Interfaces
- Interface elements
    - Displays/Output elements
    - Controls/Input elements
    - etc.
- Form
- Scale
- Proportion
- Sub-Interfaces
    - Arrangement/Layout
    - Groupings
    - Overall Interface Framework
- States
    - Variations in mapping & affordances

At least here

Plus these in terms of primary interface

Phase 3 Benchtop Review

Benchtop Review (class), Tuesday 23-Jun @ 9:00

- Share your preliminary concept alternatives the interactions, interfaces, design elements, form, system components, etc. of your product/service.
- Use the Broad Interaction Map to explain how different aspects relate to your primary users & enable them to achieve their overall motivations and goals in context

- Must be presented by a different team member than presenter for Phase 3 Process Review!