

Design as a Process: Brief introduction to how to gain domain knowledge, problem frame, and brainstorm.

Workshop Lecture by Lynn S. Dombrowski

Workshop Session

Autism AppJam

April 6, 2013

Lecture Abstract and Take Away

Abstract:

Design is a problem solving activity where researchers and designers attempt to turn existing situations into preferred ones, but how do designers do this? Designers engage in many activities while designing, including making sense of the world and actively creating insight, that aid them in speculating on how to improve particular situations. In this lecture, I briefly introduce the concept of design as a process and how to use particular tools to help you, as a designer, move from research to insight to action through the developing the skills of gathering domain knowledge, problem framing, and brainstorming.

Take Away:

- A broad understanding of the design process.
- How to use the skills of gathering domain knowledge, problem framing, and brainstorming to move from research to insight into action.

About Me



UX Design Process

What is design?

Design is devising “courses of action aimed at changing **existing** situations into **preferred** ones”. - Simon’s The Sciences of the Artificial (1997)

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- Ok, so how do we move from the existing to the preferred?

Design is a process.

The PRInCiPleS Framework for Design Plans & Explanations

		Analysis		Synthesis	
Predisposi-tions	Research ↓	Insights	Concepts & Concept Systems	Prototypes ↓	Strategies ↓
Observations			Exploratory		
Literature			Appearance		
Collections			Usability		
Predispositions are the things we believe to be true at the outset of a de- sign process or explanation. Research comes in three forms, namely (i) observa- tions—or pri- mary research, (ii) literature review—or secondary re- search, and (iii) collections—or knowledge about cultural forms.	Research comes in three forms, namely (i) observa- tions—or pri- mary research, (ii) literature review—or secondary re- search, and (iii) collections—or knowledge about cultural forms.	Insights are the design issues that arise out of research.	Concepts and systems of concepts are the things, services, com- munications, or strategies that we envision in response to insights.	Prototypes come in three forms, namely (i) exploratory— or behavioral or low fidelity prototypes, (ii) appearance—or look and feel prototypes, and (iii) usability—or proof of concept or high fidelity prototypes.	Strategies come in three forms, namely (i) social value—or technology enterprise Strategies come in three forms, namely (i) social value—or social desirabil- ity planning, (ii) technology—or technological feasibility plan- ning, and (iii) enterprise—or economic viabil- ity planning.

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Methods to “bridge” the gap:

Gather Domain Knowledge (Learn about a problem)

Problem Framing (Define a problem)

Brainstorming (Create multiple concepts)

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Why do researchers and designers do research?

To attune their understanding of a particular problem space which leads to insight into the potential design space.

To understand the particulars of people's **practices, constraints, problems, and resources**—so that we can then design for those practices, constraints, problems and resources.

Design as gathering domain knowledge.

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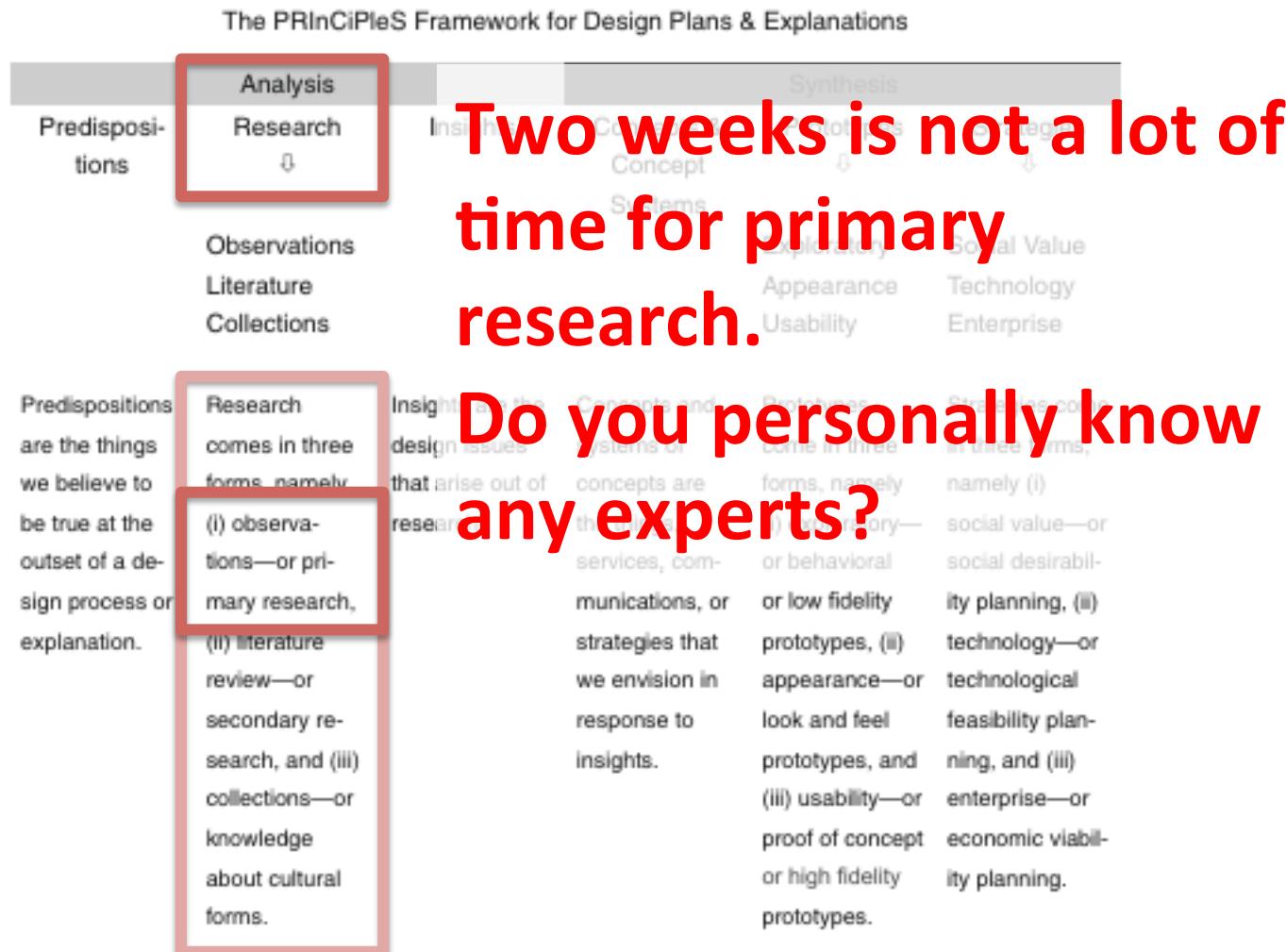
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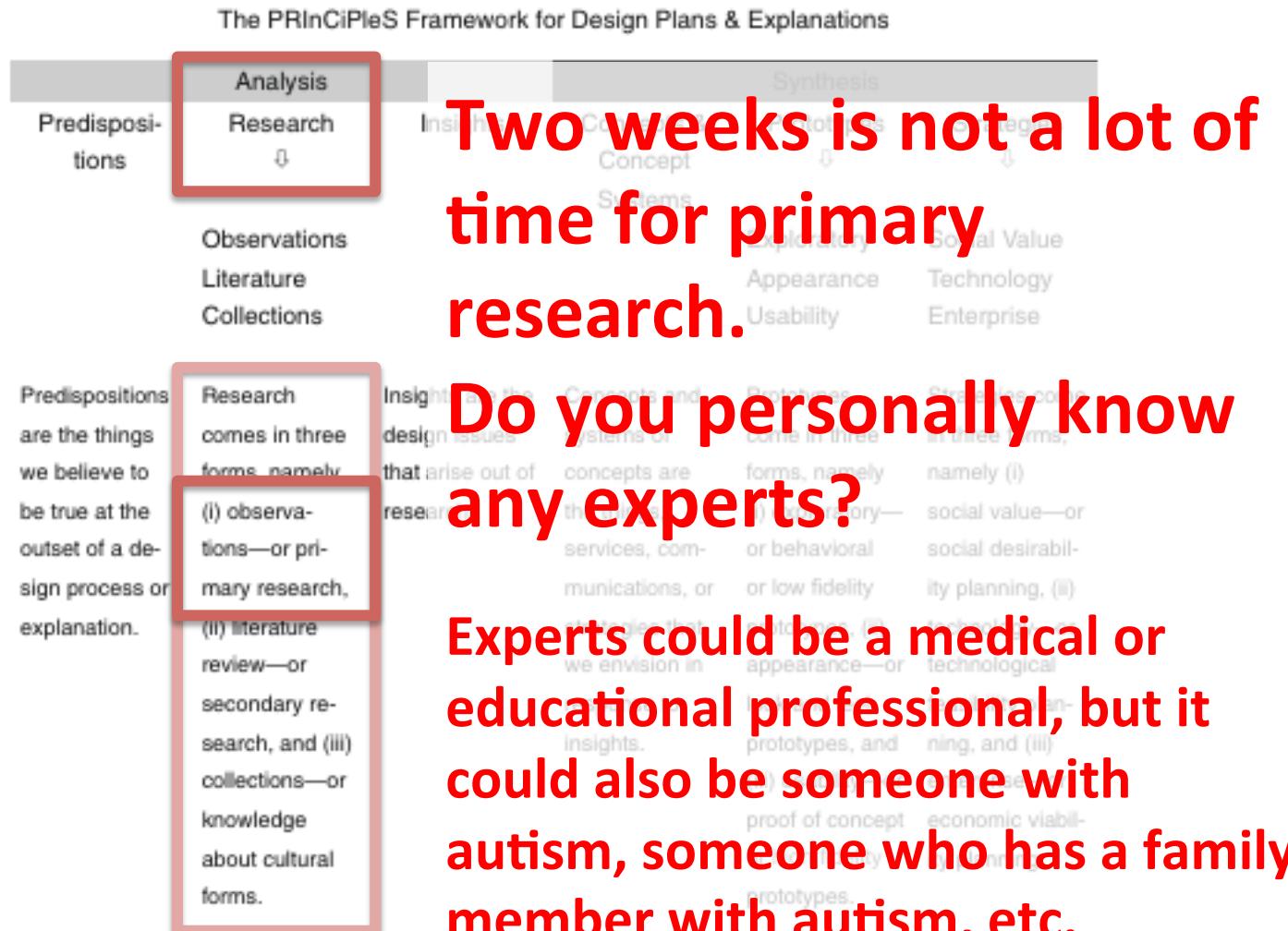
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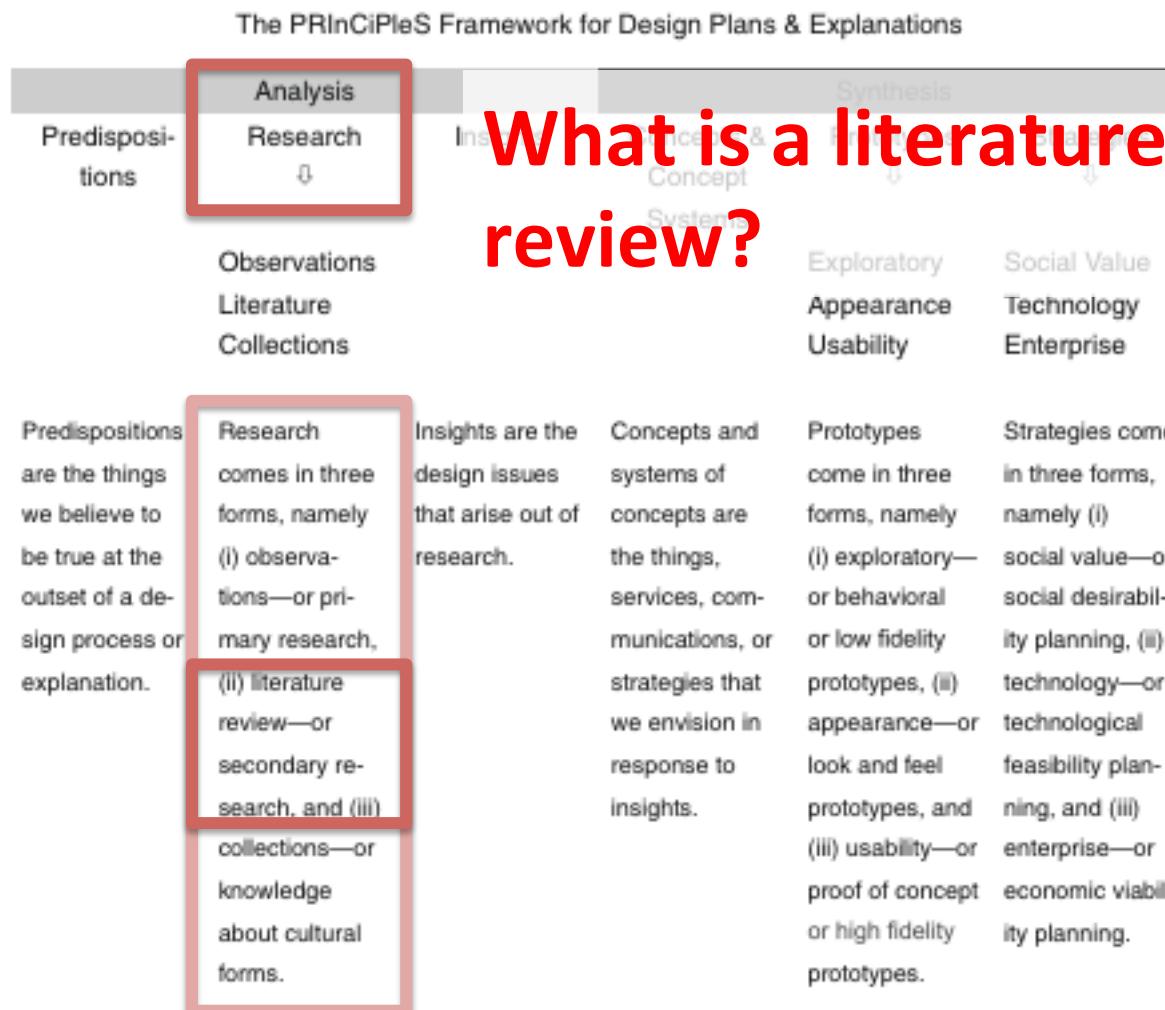
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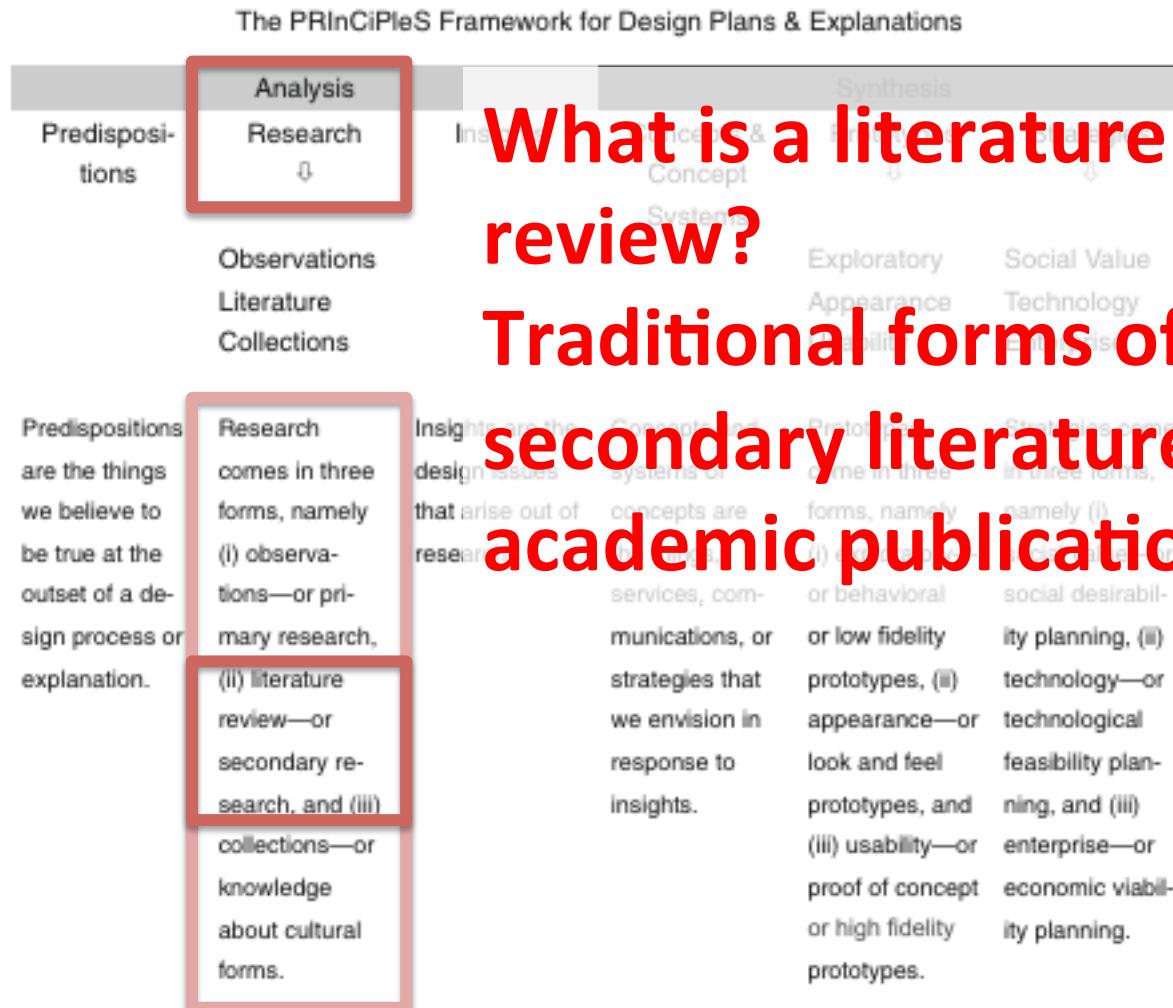
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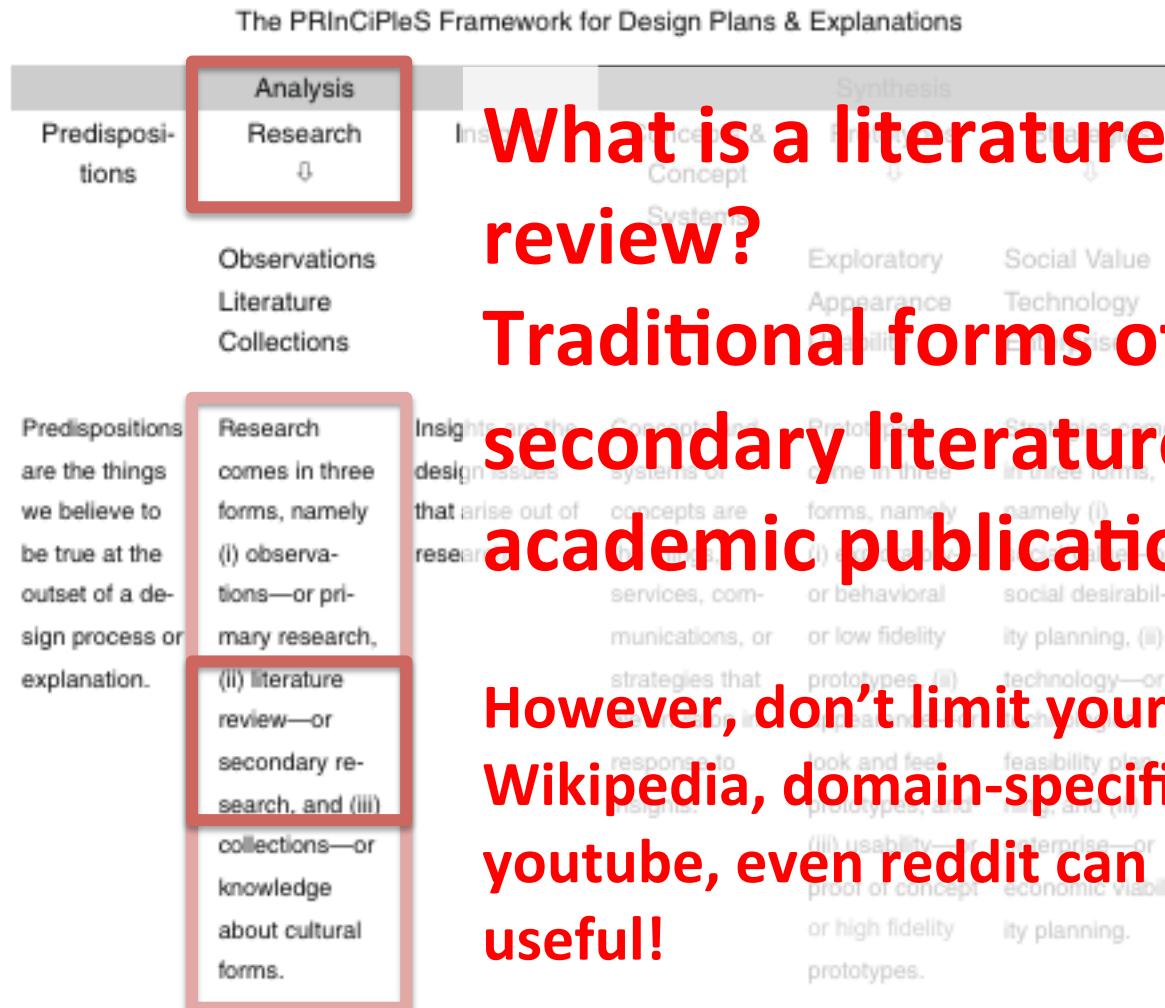


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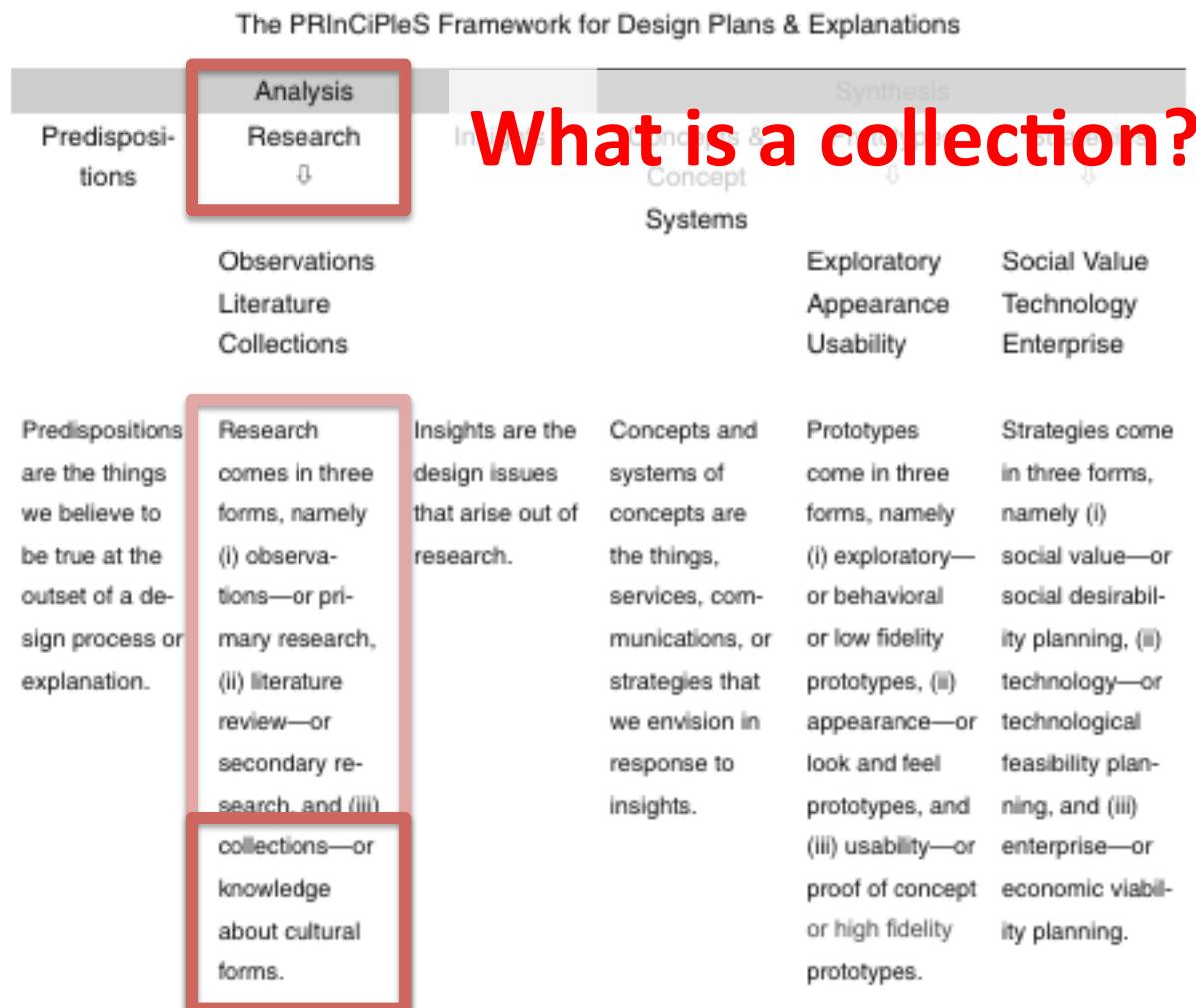


What is a literature review?
Traditional forms of secondary literature are academic publications.

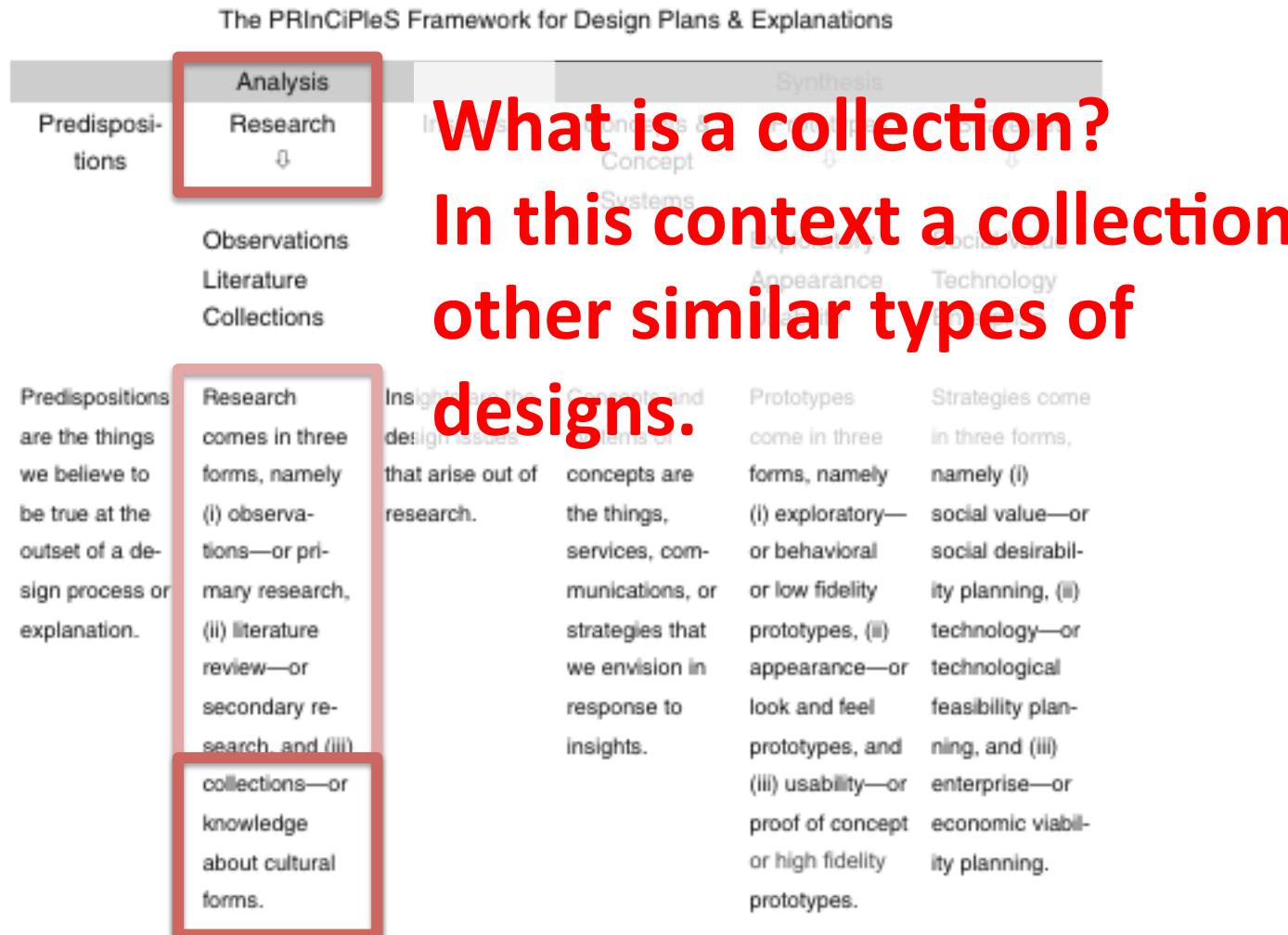
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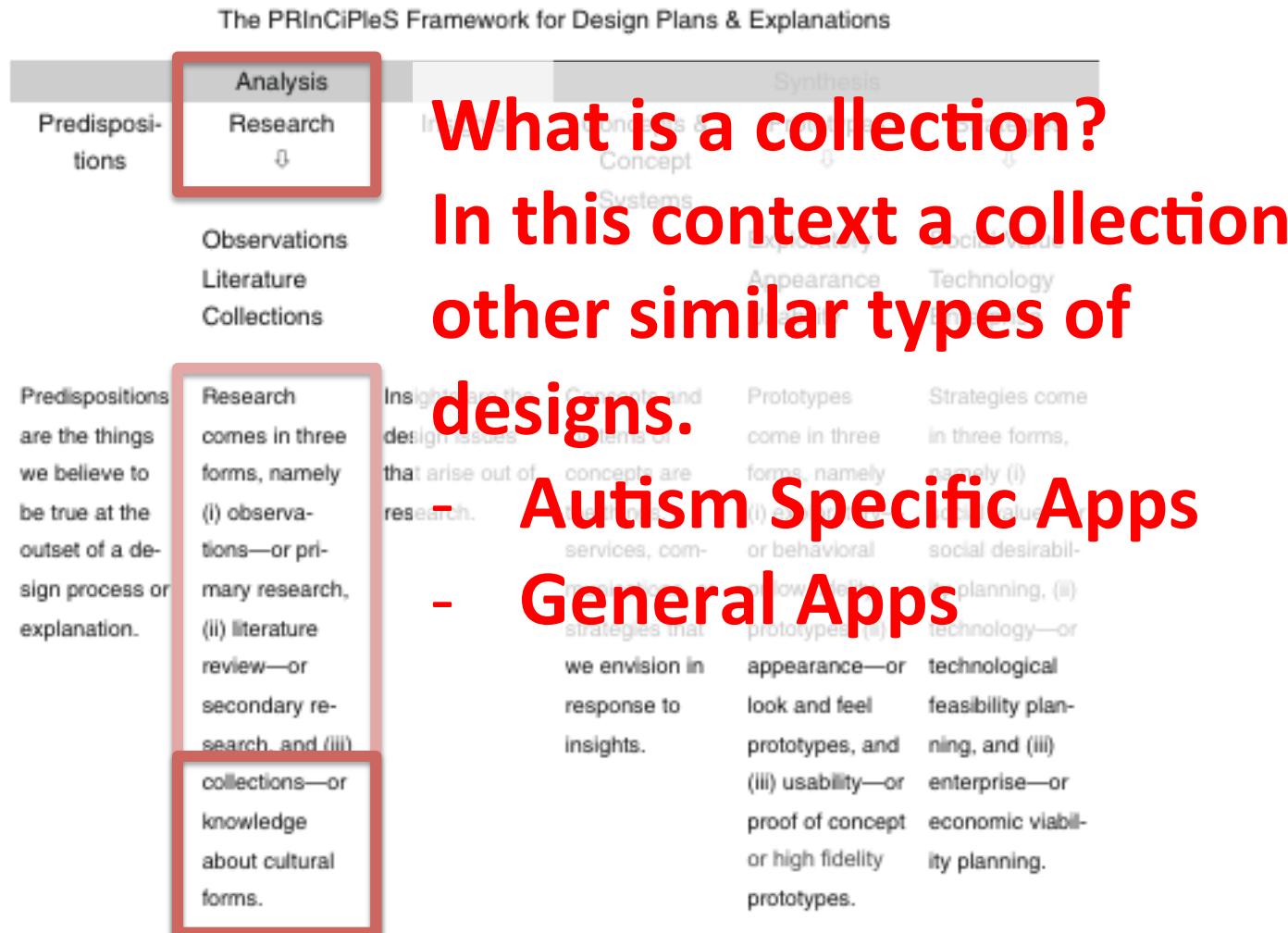
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Questions?

Questions? No?

Questions? No. Are you sure?

Design is a process.

The PRInCiPleS Framework for Design Plans & Explanations



Predispositions are the things we believe to be true, namely the basic assumptions that underlie our research. These are the things that define the context of a design problem or opportunity. They are the things that define the domain of knowledge that must be considered in the design process. They are the things that define the social context in which the design will be used.

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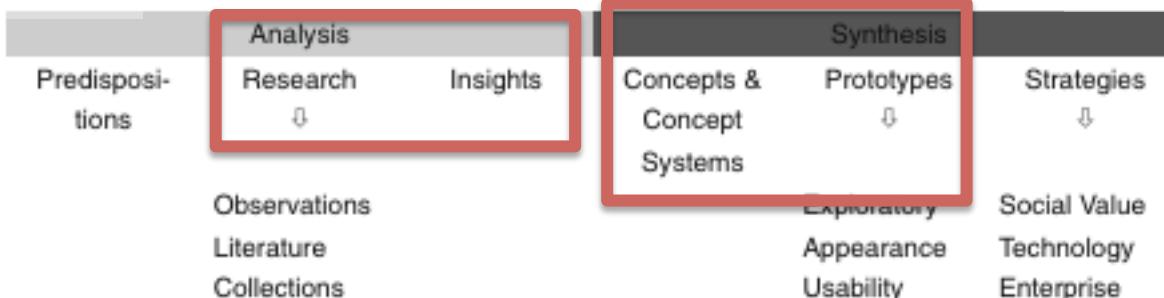


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Problem Framing

“A frame is ... a point of view ... a non-objective way of considering a situation or idea. But a frame ... is of critical use to the designer, as it is something that is shaped over the long-term aggregation of thoughts and experiences ... and is therefore a larger way of viewing the world and situations that occur in it.” (Kolko, 2010)

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- Problems do *not* exist. Through the act of defining a problem, we also create their solutions or the acceptable parameters by which they can be addressed.
- Generally, we co-define problems with our team mates.
- We need to be *particular* in what problem we attempt to address.

Problem Framing

Aim to build **consensus**, but understand it takes a lot of work with multiple stakeholders or teammates. Aim to outline the issues and their parameters with your teammates.

Parameters: goals, current constraints, current resources.
(Kolko, 2010)

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Problem Framing

Problems need to be *particular*. I can't solve poverty, but I might be able to do something about: improving the usability of a website, finding new ways to help people distribute excess food resources, etc.

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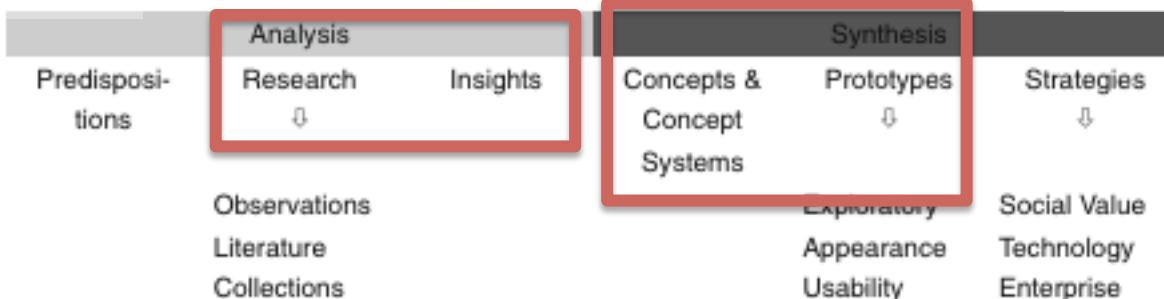
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Brainstorming

Brainstorming is a particular activity that joins a problem frame and sketches. The goal is to understand the parameters of the design space through iteratively sketching and thinking through what is possible given the resources and constraints of your particular type of person or situation.

Trying to push and understand:

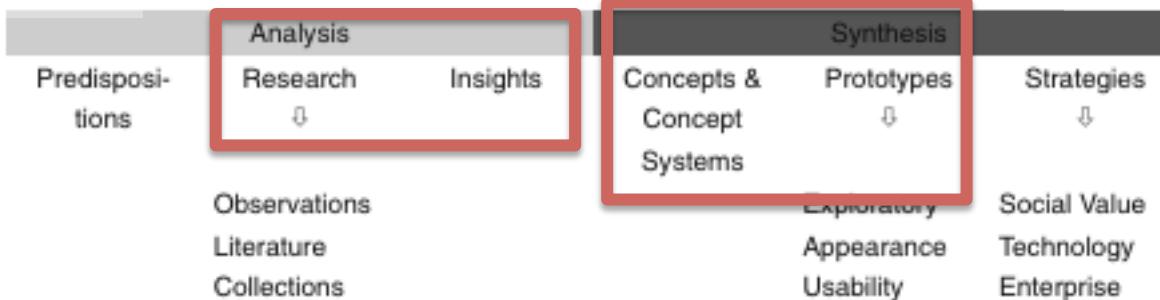
- Tradeoffs that might exist
- Who's needs are being met by the design?

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Advice for Your Design Pitches

- Your pitch needs to articulate the problem and how your application addresses that problem.
- PRINCIPLES is a design presentation format.
- If you can speak to each of the sections, you'll do well.

Exercise

- **Prompt:** All of you have had low-wage service jobs (cashiers, waitresses, janitors, etc.) or have interacted with people who are low-wage service workers.
 - Think about the particulars of their work (physically demanding, co-workers, customers, how they get to work, management, do they have multiple jobs, job mobility, education)
- **Individual Problem Frame:** What are some problems these folks face that you could design for? [8 minutes]
 - Be specific! The more particular, the better your designs.
- **Co-Frame:** 15 minutes. Pair up! Discuss with your partner the problems you identified or framed.
- **Reflect:** 10 minutes.
 - Problem Frame
 - What kinds of frames did you make? What was the problem frame? Which stakeholders' needs did you think about? What was the problem you tried to address?
 - How was the process of co-identifying the problem?

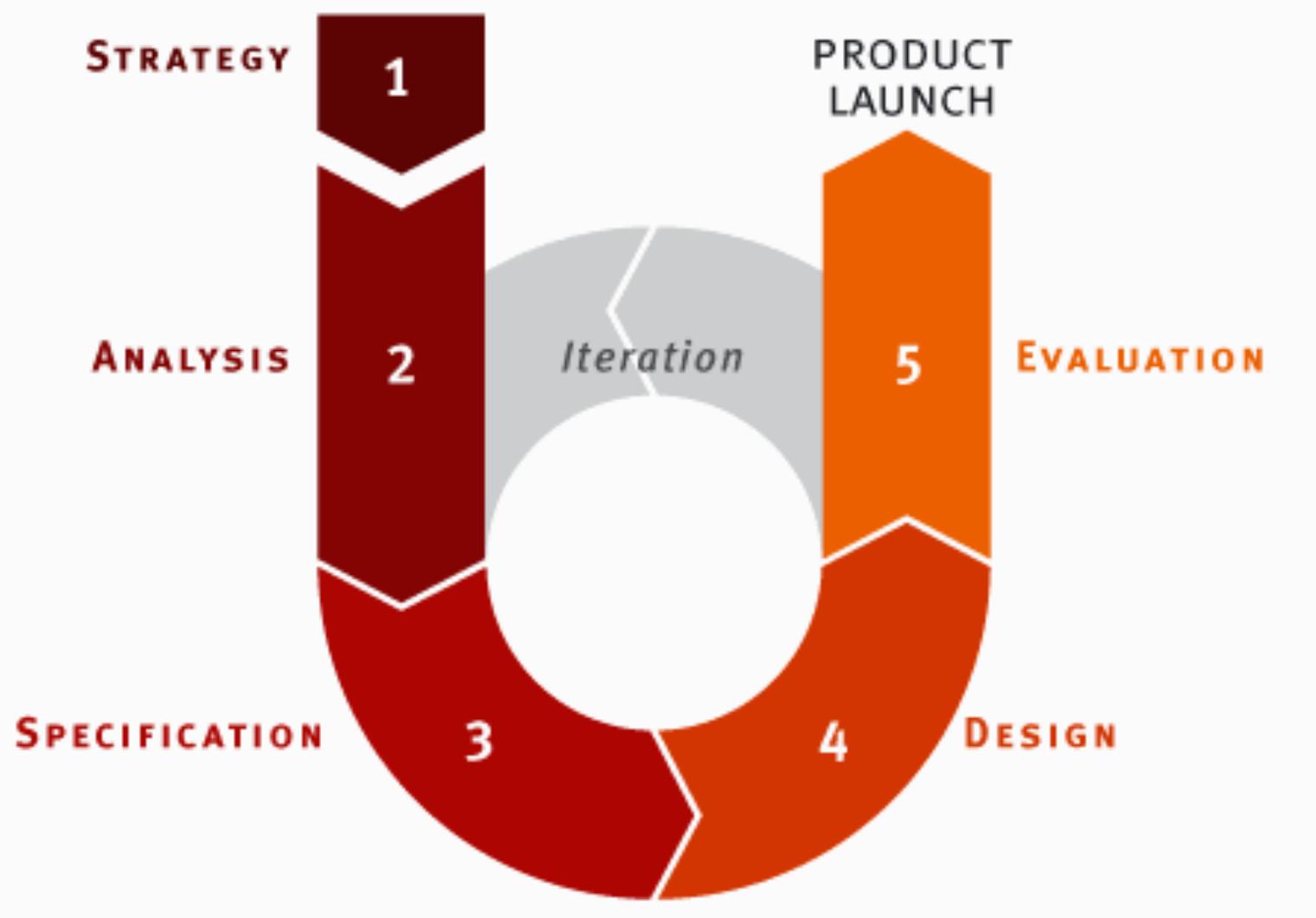
Questions?

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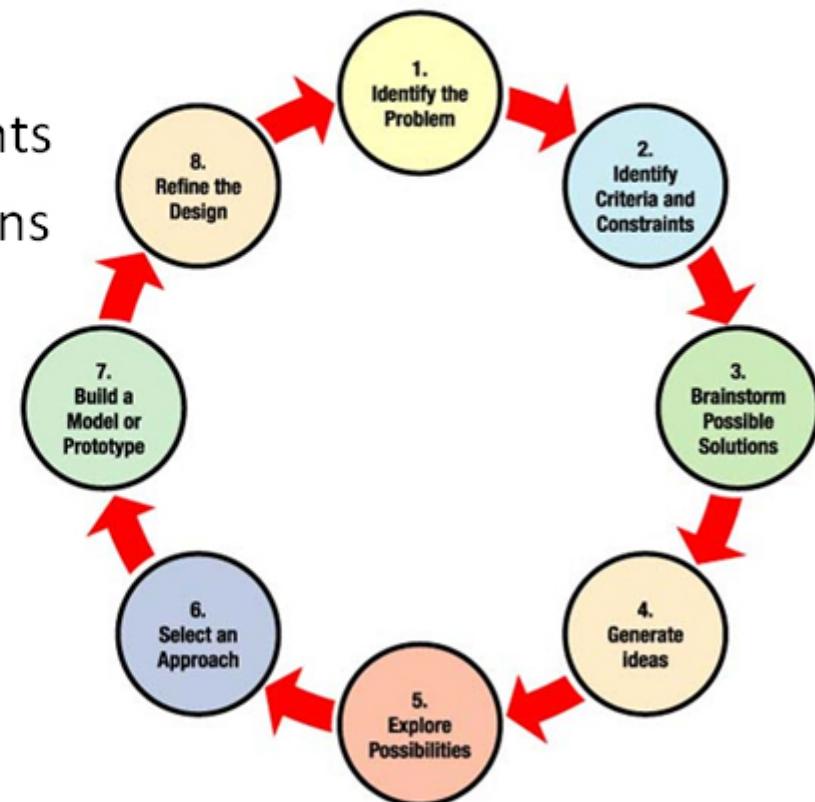
EXTRA SLIDES: VISIONS OF DESIGN PROCESS



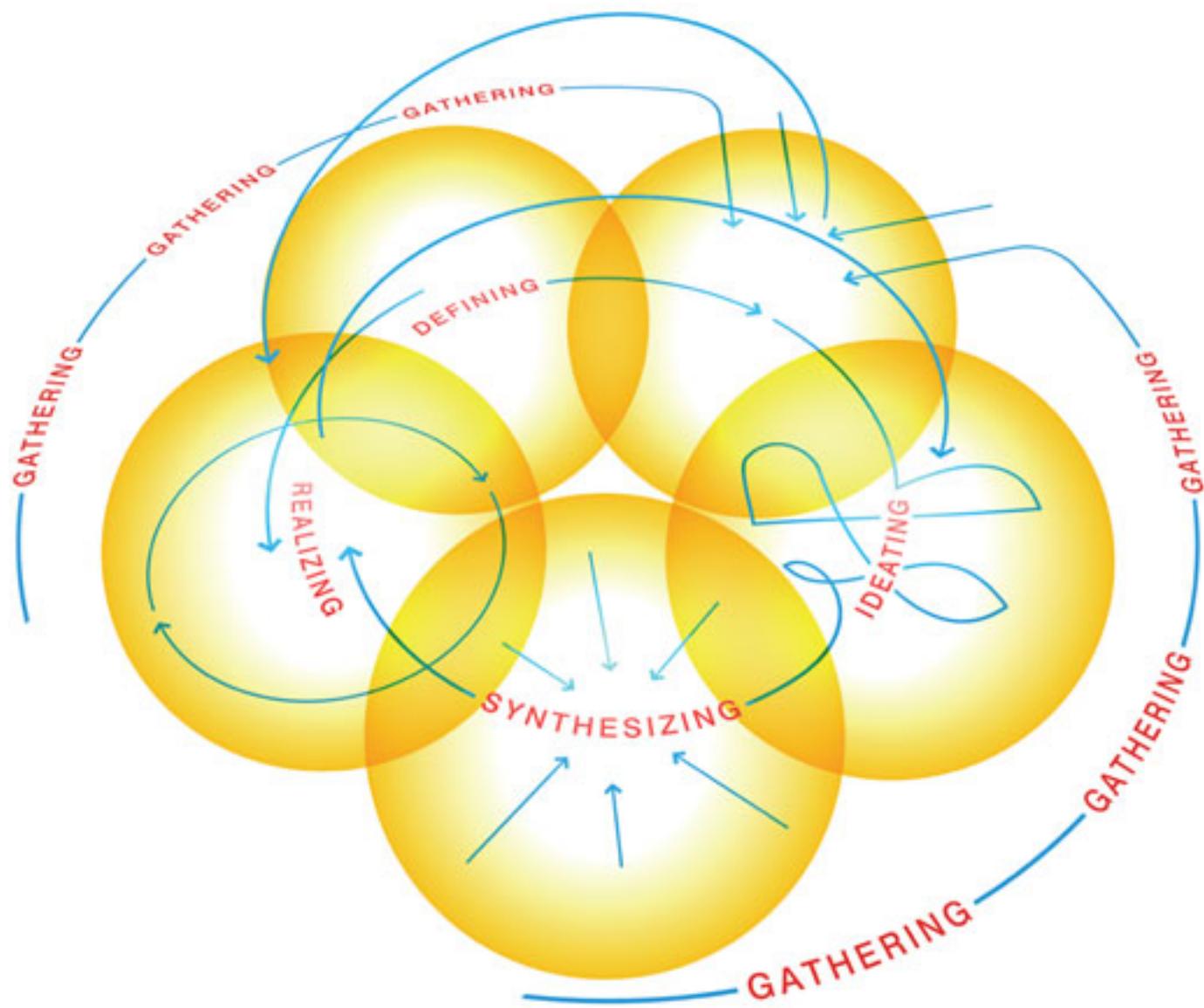


Engineering Design Process

1. Identify the Problem
2. Identify Criteria & Constraints
3. Brainstorm Possible Solutions
4. Generate Ideas
5. Explore Possibilities
6. Select an Approach
7. Build a Model or Prototype
8. Refine the Design



<http://www.nasa.gov/audience/foreducators/plantgrowth/reference/index.html>



a model of the creative process

