# Blending Design Thinking and Design-Based Research

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https://tinyurl.com/CCLI2018

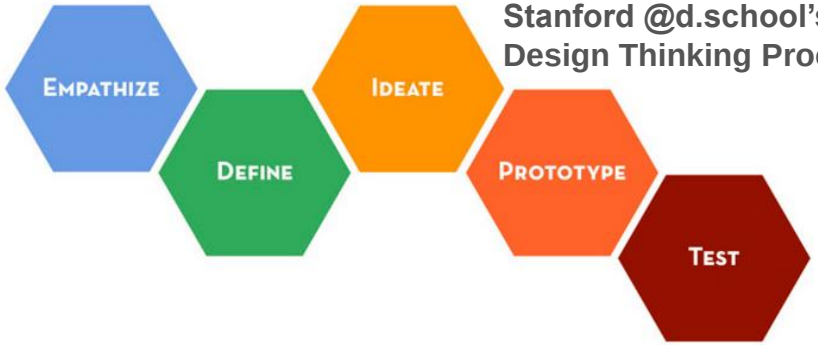
https://www.td.org/events/learnow-design-thinking

# Presentation Objectives

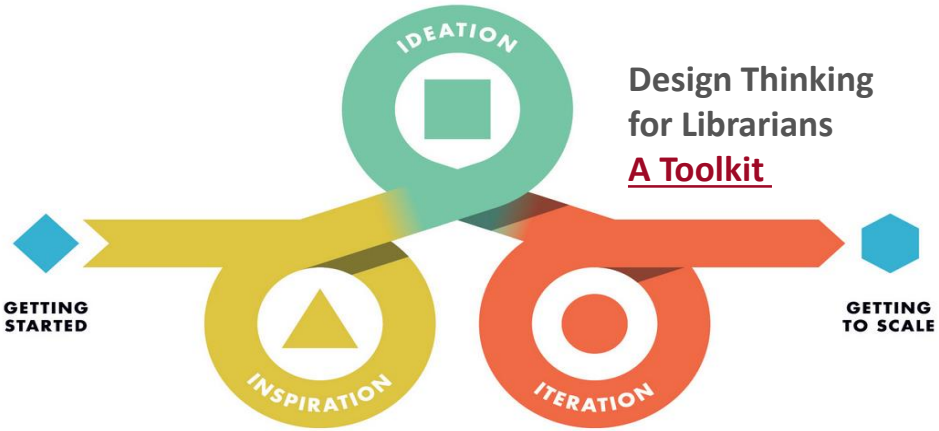
## After this session you will be able to:

- Define design thinking (DT) and design-based research (DBR)
- Through a case study learn how DT & DBR could intersect
- Articulate your own instructional problem to attack with a design thinking process
- Begin to develop a design-based research plan to gather data about that problem.
- Share their planning ideas with peers for feedback

# What is Design Thinking?

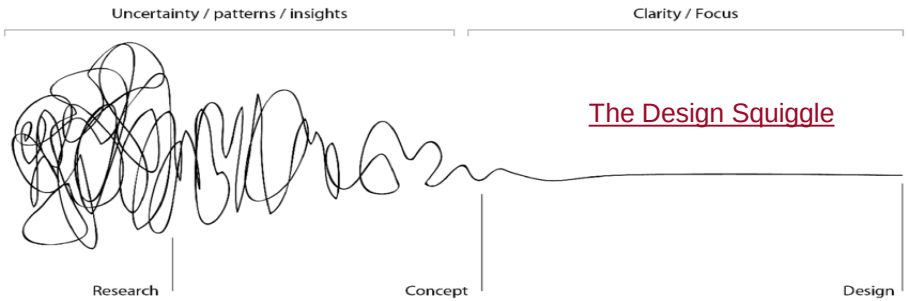



Stanford @d.school's Design Thinking Process

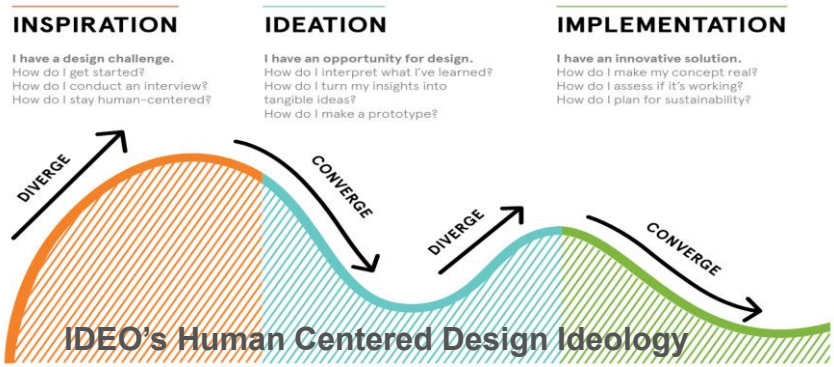



Design Thinking for Librarians

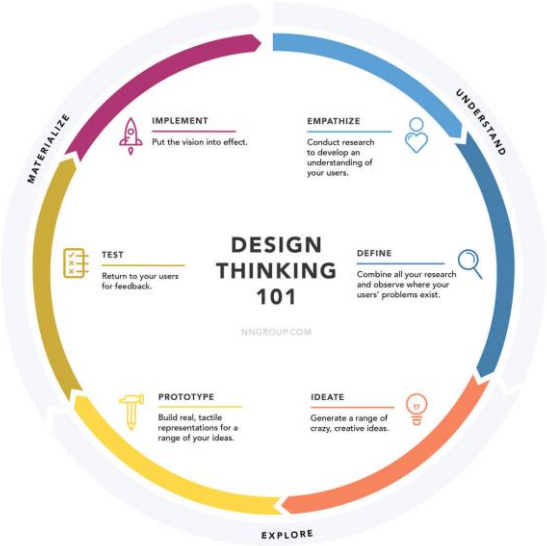
A Toolkit

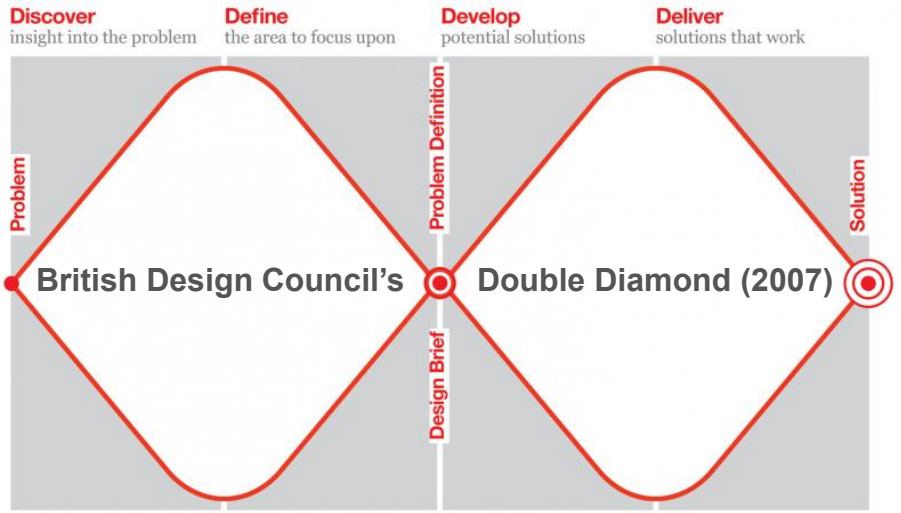



The Design Squiggle



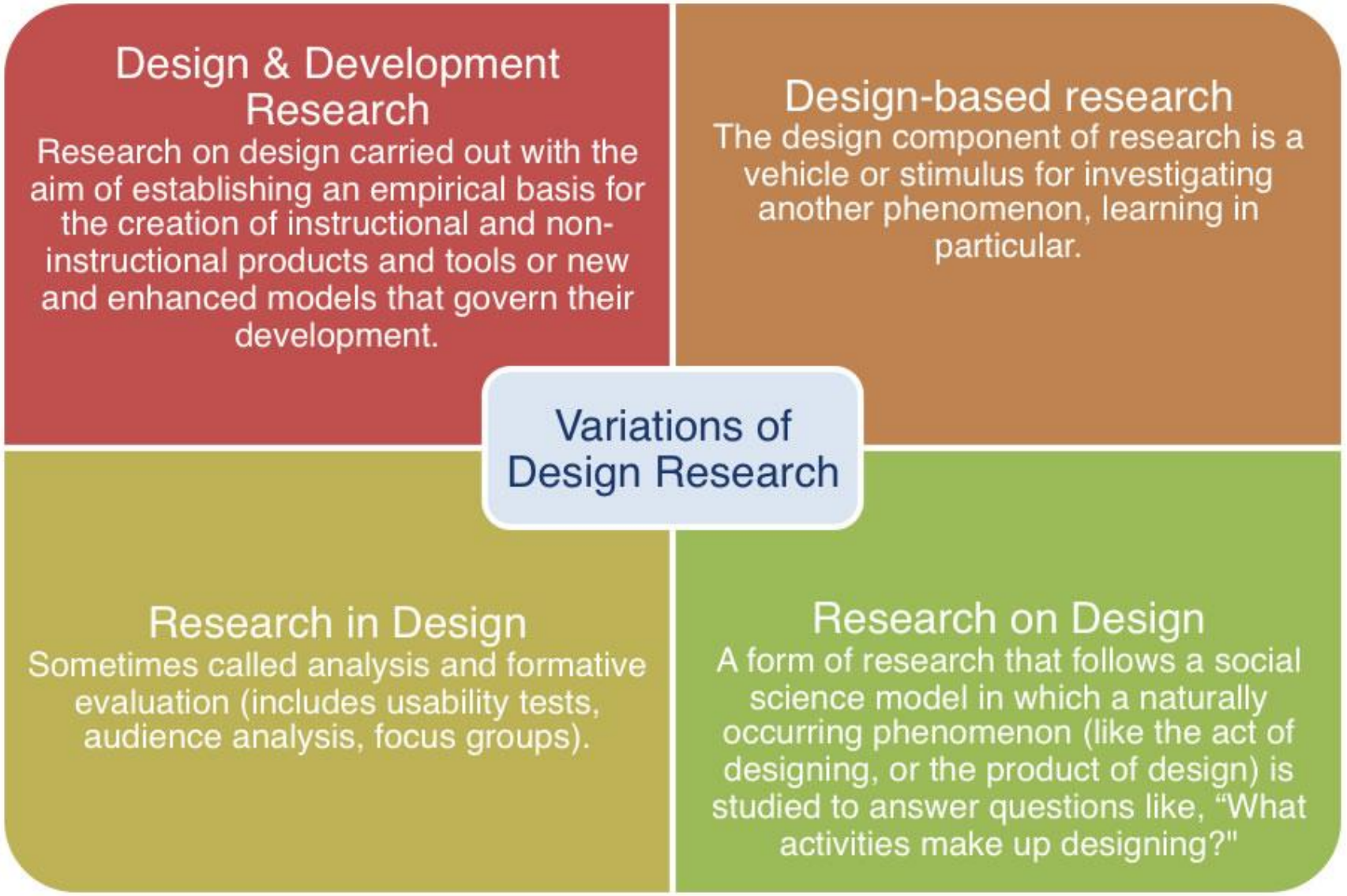

IDEO's Human Centered Design Ideology



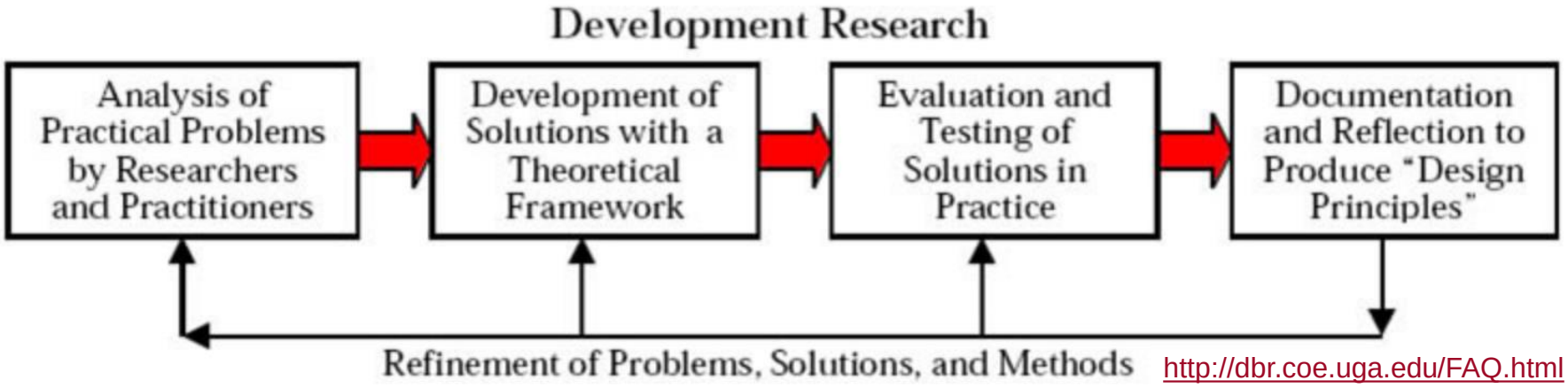

https://designshack.net/articles/business-articles/thinking-about-design-thinking-is-it-important/

# What is Design-Based Research (DBR)?

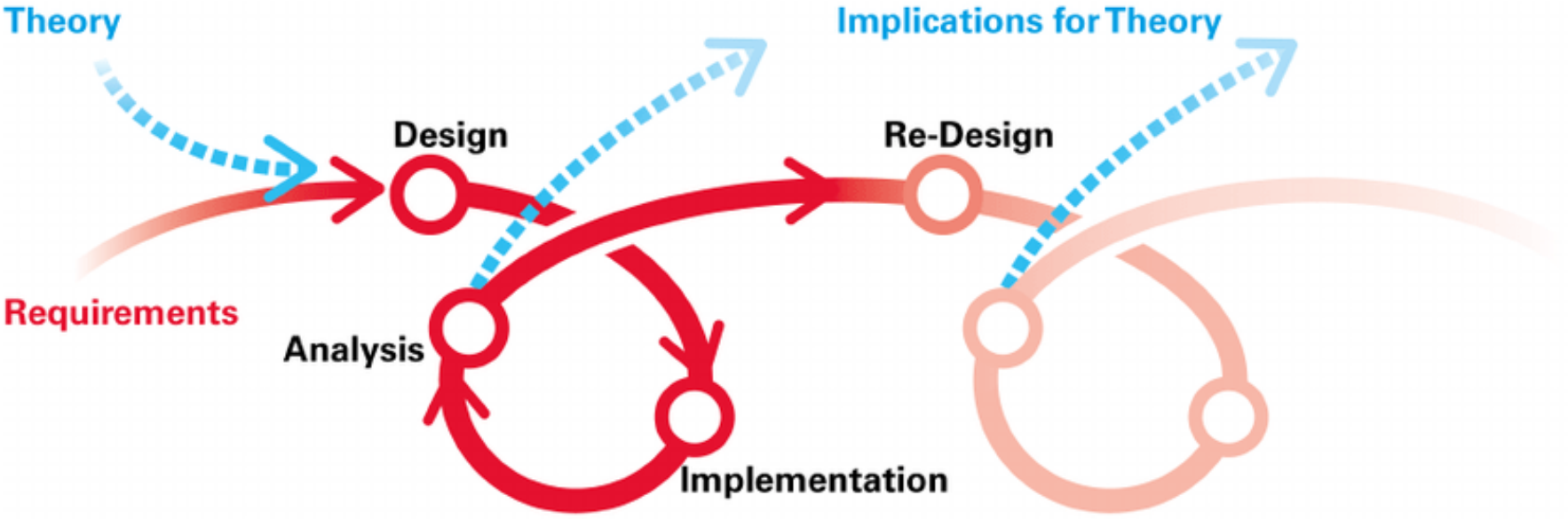



https://events.educause.edu/eli/webinars/2012/eli-webinar-iterative-design-for-learning-using-design-research-and-prototyping-to-innovate-and-support-learning

# What is Design-Based Research?

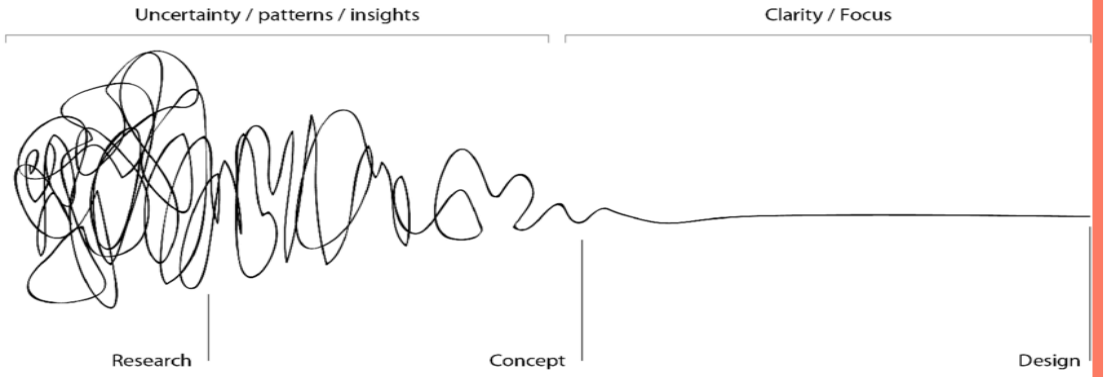


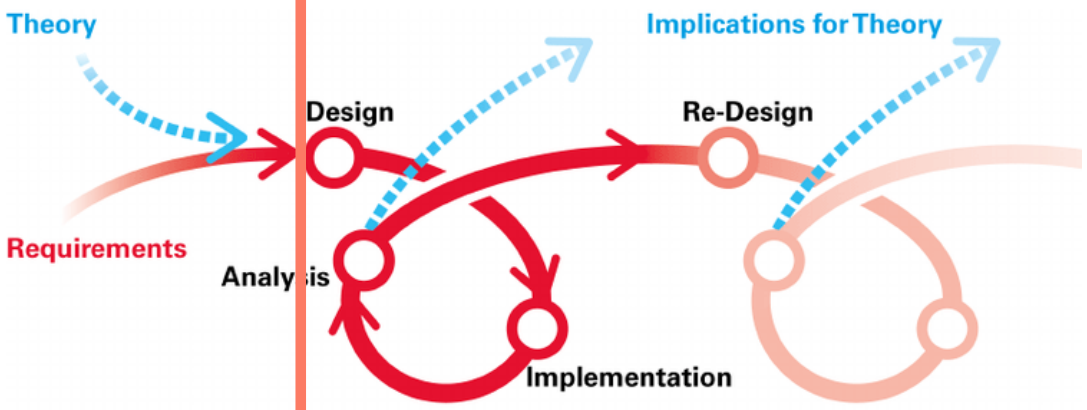

http://dbr.coe.uga.edu/FAQ.html




http://www.ethanhein.com/wp/2017/design-based-research/

# Where does DT & DBR intersect?



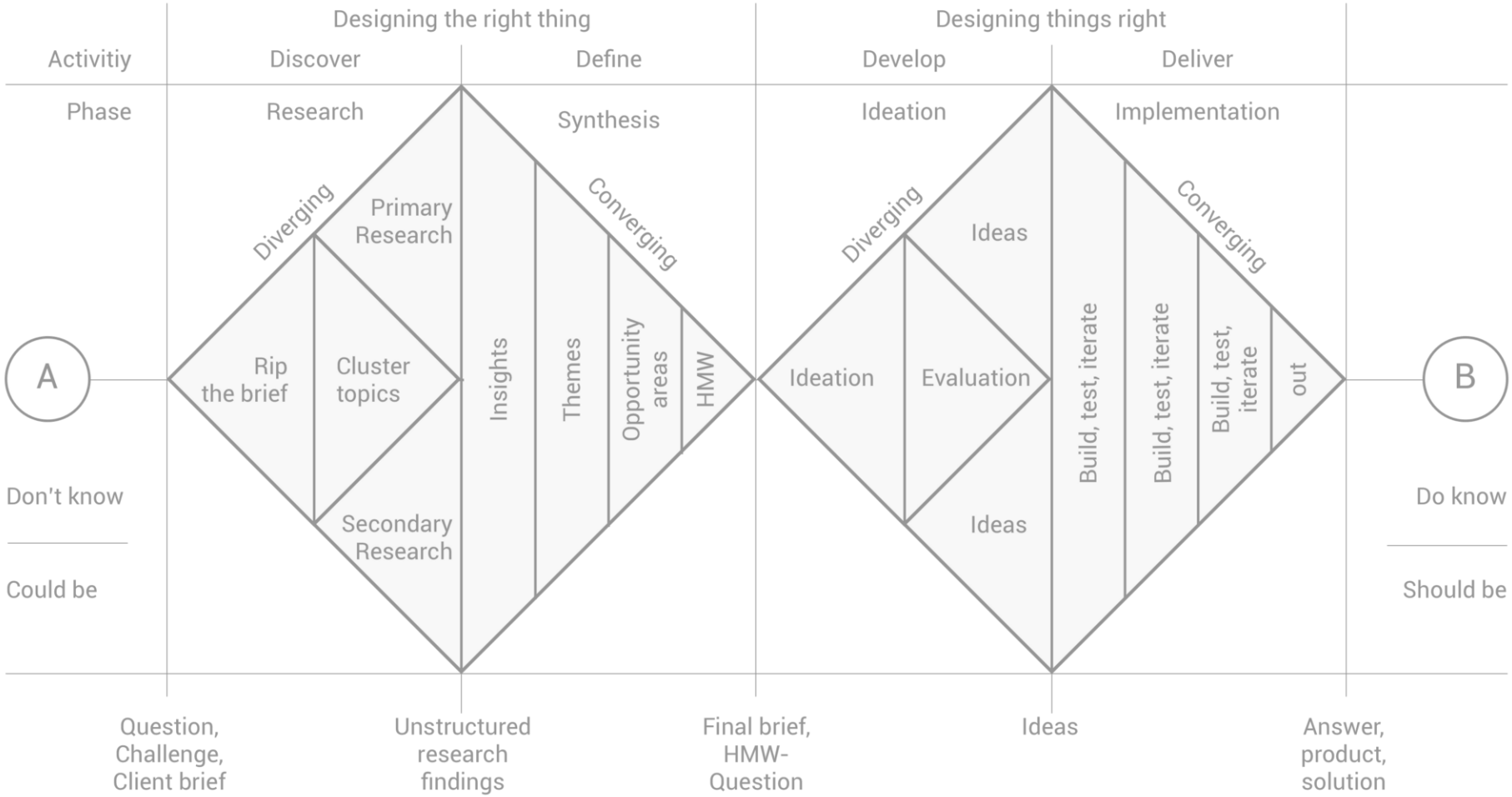

Design Thinking Piece

Design-Based Research Piece

# Why Use DT & DBR?

- Visualization of the bigger picture
  - Connecting theory (ideas) and practice (application)
  - Isolate a problem and try out solutions
- Focuses on the user and affective attitudes of learning
- Can implement change in smaller increments, faster
  - Less risk
- Changes the way decisions are made – on evidence
- Helps to build a research-based culture around instruction
  - Grounded in solid instructional design and research principles

# Designing the right thing AND Designing things right



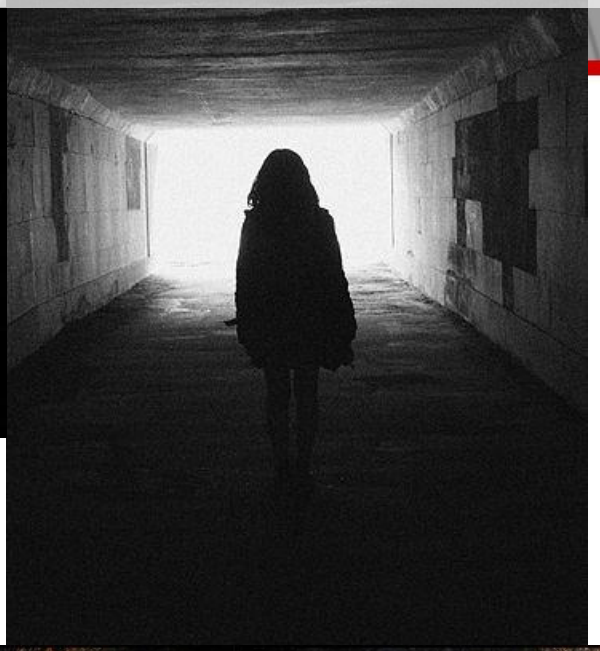

Dan Nesser, 2016 blog - adaption of the British Council Double Helix Model

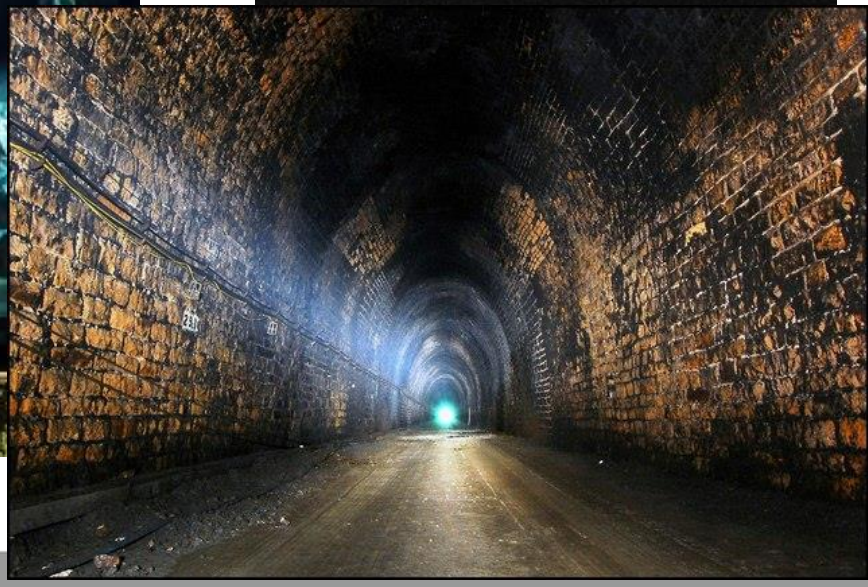
# What design challenges(s) or problem do you have?

## Think – Pair – Share Activity #1

- Take a few minutes to think about your instructional problems
- Share your problem with a peer
  - Brainstorm some ideas
  - Talk about possible literature connections to your problem
- Record you ideas, brainstorming, discussion on your handout
- Share back some ideas

# Trying to Understand & Empathize

# Reflect on Engagement Strategies

## 1. Students Engaged With the Content

Big Course Questions and Concepts

- Cognitive activities (Critical Thinking)
- Metacognition
- Reflection

## 2. Students Engaged in the Learning Process

- Methods
- Classroom Activities

## 3. Students Engaged in the Learning Context

- Online vs. F2F environment
- Authentic learning experience
- Interdisciplinary or group projects

Bowen, S. (2005). Engaged learning: Are we all on the same page. *AACU Peer Review*, *7*(2), 4-7.

# "Significant Learning" (Fink, 2003),

Is your problem related to how students …

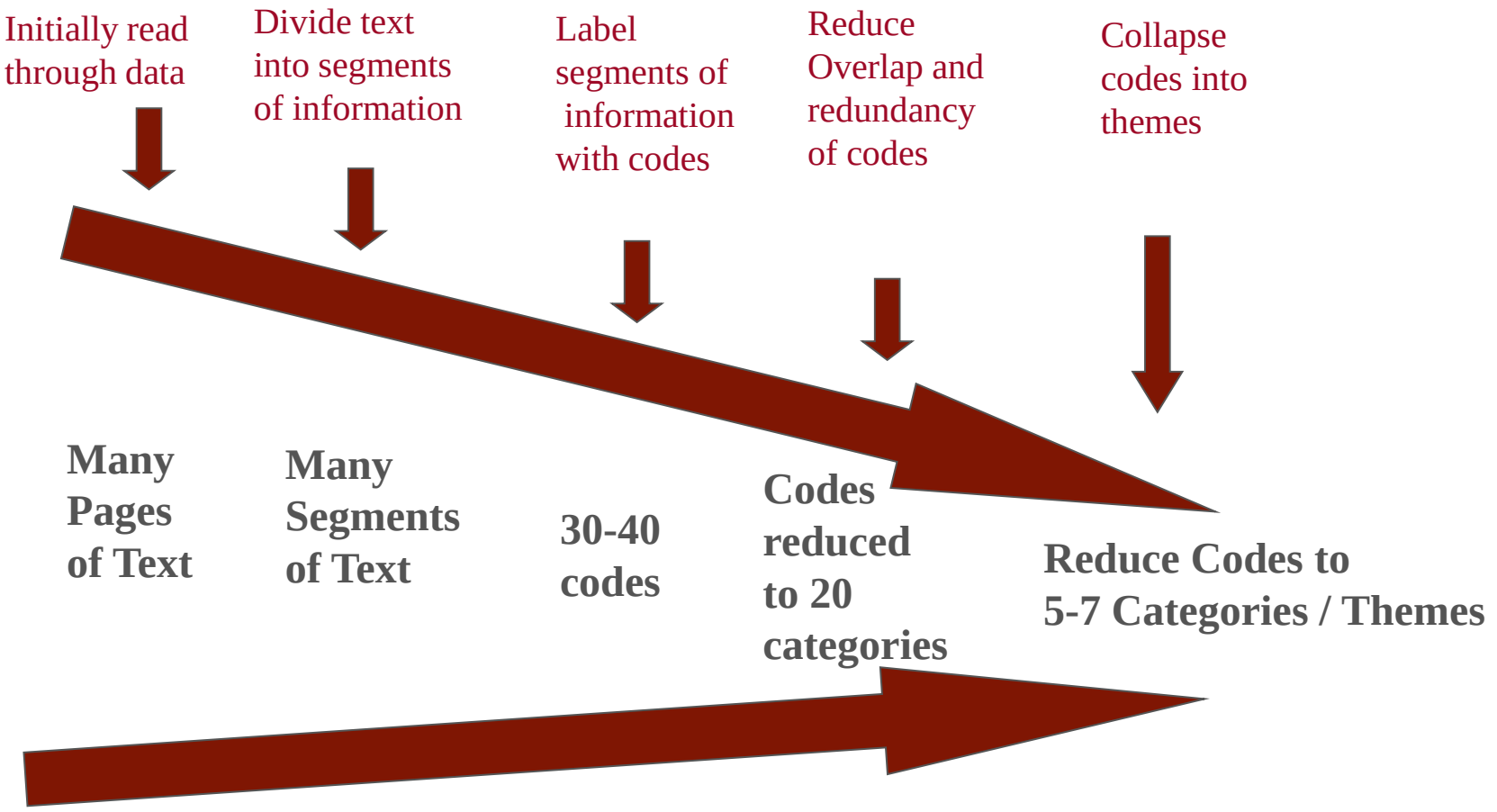
- **Understand and remember** the key concepts, terms, relationship, etc.
- Know how to **use** the content
- Are able to **relate** this subject to other subjects
- Understand the **personal and social** implications of knowing about this subject
- **Value** this subject and further learning about it
- Know how to **keep on learning** about this subject, after the course is over

| Pilot Survey Questions (3 classes / n= 57 ) | Means of Pre-Survey | Mean of Post-Survey |
|---|---|---|
| 1. General comfort level with research and using library resources | 3.0 | 3.2 |
| 2. Understanding the information seeking and research process | 3.3 | 3.7 |
| 3. Comfort level with web-based research (ex Google & websites) | 4.1 | 4.3 |
| 4. Using the Usearch library catalog | 2.2 | 3.3 |
| 5. Comfort level using keywords | 3.7 | 4.1 |
| 6. Knowing how to find a book in the library stacks | 2.4 | 3.3 |
| 7. Knowing where to get help with research | 2.8 | 3.9 |
| 8. Comfort level with using IBISworld database | 1.6 | 3.1 |
| 9. Comfort level getting help in the future | 3.0 | 3.7 |
| 10. Comfort level finding list of business databases | 2.1 | 3.8 |
| **9. Overall survey pre/post means** | **2.6** | **3.6** |

| Survey Questions (n = 834) | Means of Pre-Survey | Mean of Post-Survey |
|---|---|---|
| 1. General comfort level with research and using library resources | 3.0 | 3.6 |
| 2. Understanding the information seeking and research process | 3.3 | 3.9 |
| 3. Comfort level with web-based research (ex Google & websites) | 4.2 | 4.4 |
| 4. Using the Usearch library catalog | 2.5 | 3.5 |
| 5. Comfort level using keywords | 3.6 | 4.1 |
| 6. Knowing how to find a book in the library stacks | 2.5 | 3.2 |
| 7. Knowing where to get help with research | 3.0 | 3.9 |
| 8. Know what a citation is and using citations | 3.8 | 4.3 |
| **Overall survey pre/post means** | **3.0** | **3.6** |

| Four Categories of Comments | Pre-survey Question | Post Survey Questions | Total # of Codes by Category |
|---|---|---|---|
| Learning about library research sources and services | 128 (43.1%) | 169 (56.9%) | 297 (100%) |
| Valuing library resources | 89 (50.9%) | 86 (49.1%) | 175 (100%) |
| Becoming a more efficient/effective researcher | 104 (74.3%) | 36 (25.7%) | 140 (100%) |
| Other library resources, tools and support | 38 (31.4%) | 83 (68.6%) | 121 (100%) |
| Expressing anxiety and needs | 40 (62.5%) | 24 (37.5%) | 64 (100%) |
| **Total # of Codes by Survey** | **399** | **398** | **797** |

# "Winnowing Down": Data Reduction in the Qualitative Process




Creswell, J. W., & Clark, V. L. P. (2004). *Principles of qualitative research: Designing a qualitative study.* Office of Qualitative & Mixed Methods Research, University of Nebraska, Lincoln.

# What kind of data would you collect?

## Activity #2

**What type of data would you need to collect about your instructional problem to know how to solve your problem or make a difference?**

- What type of data?
  - Qualitative / Quantitative
  - Survey / Interview
- How would you collect your data? When?

# The ARCs Model (Keller, 2009)

1. **Attention**: Perceptual arousal (Surprise) or Inquiry arousal (Curiosity)
2. **Relevance**: Use familiar concrete language and examples relevant to them
3. **Confidence**: Help students understand their likelihood for success
4. **Satisfaction:** Make learning rewarding or satisfying

# Re-design: Top 5 Strategies

1. **Get Organized: Develop a Research Toolbox**
   - Library tools, Box, citation management tools, UGCloud for shared writing and presentations, Scholar connection
2. **Go Broad to Start**
   - Use Google, Google Scholar, & library catalog to do a broad search
   - Find keywords and subtopics to narrow searches
   - Do concept maps to identify and link subtopics and keywords
   - Identify different types of resources & evaluate sources

**3. Dig Deeper**

- Delve deeper into scholarly databases
- Explore discipline specific and scholarly resources

**4. Mine What You Find**

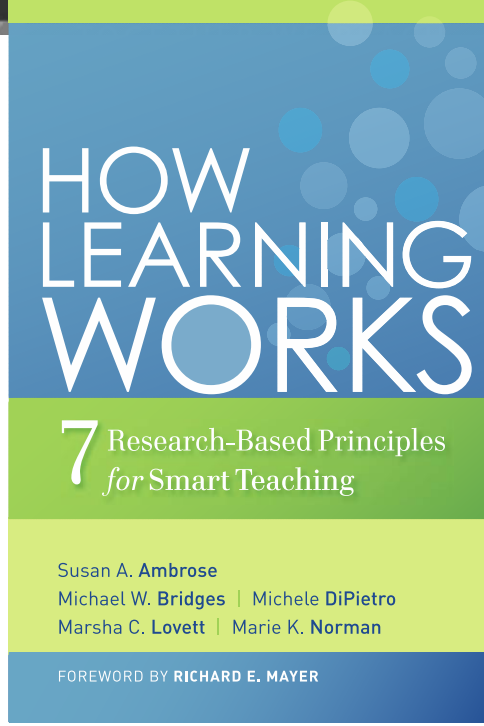
- Utilize reference lists from those good articles
- Investigate Google scholar profiles and Cited By for seminal authors
- Use Excel or Evernote to track lists of relevant journals, keywords etc.

**5. Ask for Help**

- I provide my contact info, liaison list, chat and email,
  writing center information, liaison information etc.

# 7 Research Based Principles

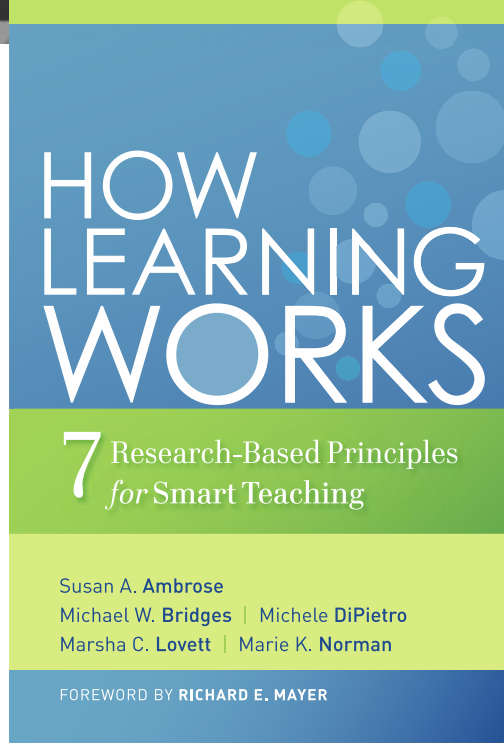
1. Students' **prior knowledge** helps / hinders new learning
2. How students **organize knowledge influences how they learn and apply** what they know.
3. **Motivation** determines, directs, and sustains what students do to learn.
4. To develop mastery, students must **acquire component skills, practice integrating them**, and know when to apply what they have learned




Ambrose, S. A., Bridges, M. W., DiPietro, M., Lovett, M. C., & Norman, M. K. (2010). How learning works: Seven research-based principles for smart teaching. John Wiley & Sons.

# 7 Research Based Principles (cont.)

5. **Goal-directed practice**, coupled with **targeted feedback**, enhances the quality of learning.
6. Students' current level of development **interacts with the social, emotional, and intellectual climate** of the course to impact learning.
7. To become self-directed learners, students must **learn to monitor and adjust their approaches** to learning.




Ambrose, S. A., Bridges, M. W., DiPietro, M., Lovett, M. C., & Norman, M. K. (2010). How learning works: Seven research-based principles for smart teaching. John Wiley & Sons.

# The Bigger Picture and then Focus on The Process:

## Wrap Up

- Help students learn how to learn, provide support, and information about the process
  - Explain why you teach the way you do
- Guide students in reflection on their own change in learning, thinking, and perspectives
  - Reflections, and formative feedback
- Gather continual formative data across the course experience and make adjustments as needed to meet personal needs of faculty and students

# What kind of data would you collect?

**Activity #3 – Wrap Up Reflection** Record a few steps that you will take to get started on using design thinking and design based research

**Step 1: Discover Phase**

- Brainstorm about your problem

**Step 2: Define Phase**

- Look at the literature
- Collect data

**Step 3: Develop Phase**

- Design or redesign your instruction

**Step 4: Deliver Phase**

- Teach and collect more data on how it goes

# References

**Design Thinking**

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**Design-Based Research**

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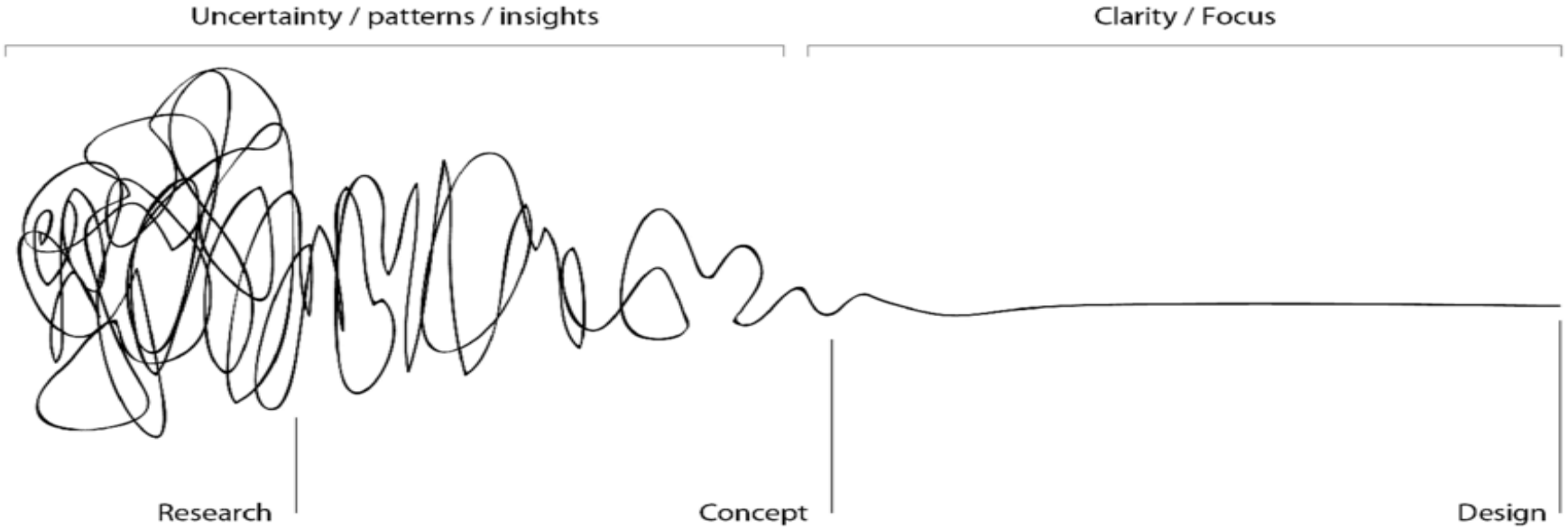
# Questions?

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