



# **HUMAN-CENTERED DESIGN FOR DEVELOPMENT**

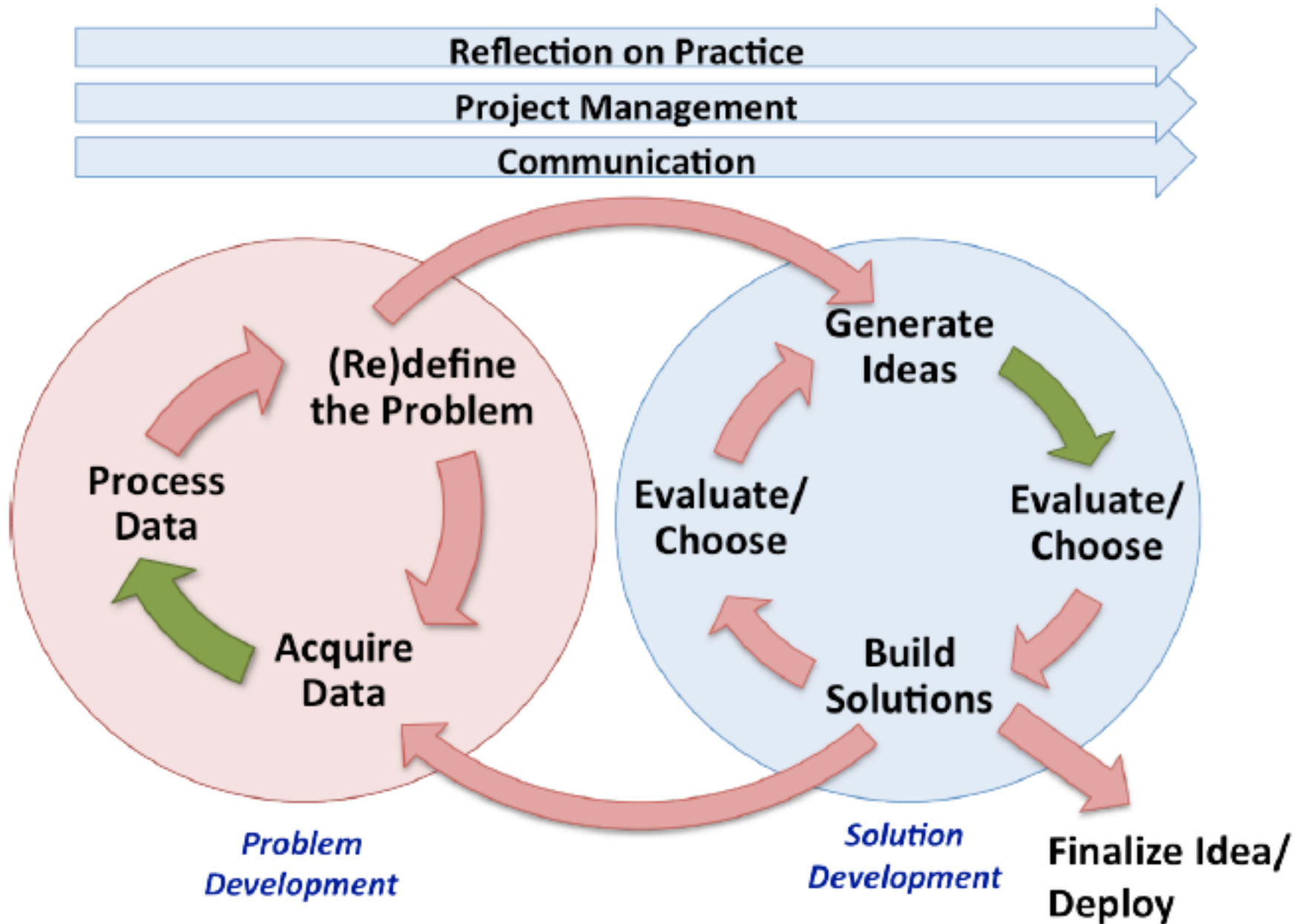
**BEST Lab Presentation  
Friday, November 4, 2016**

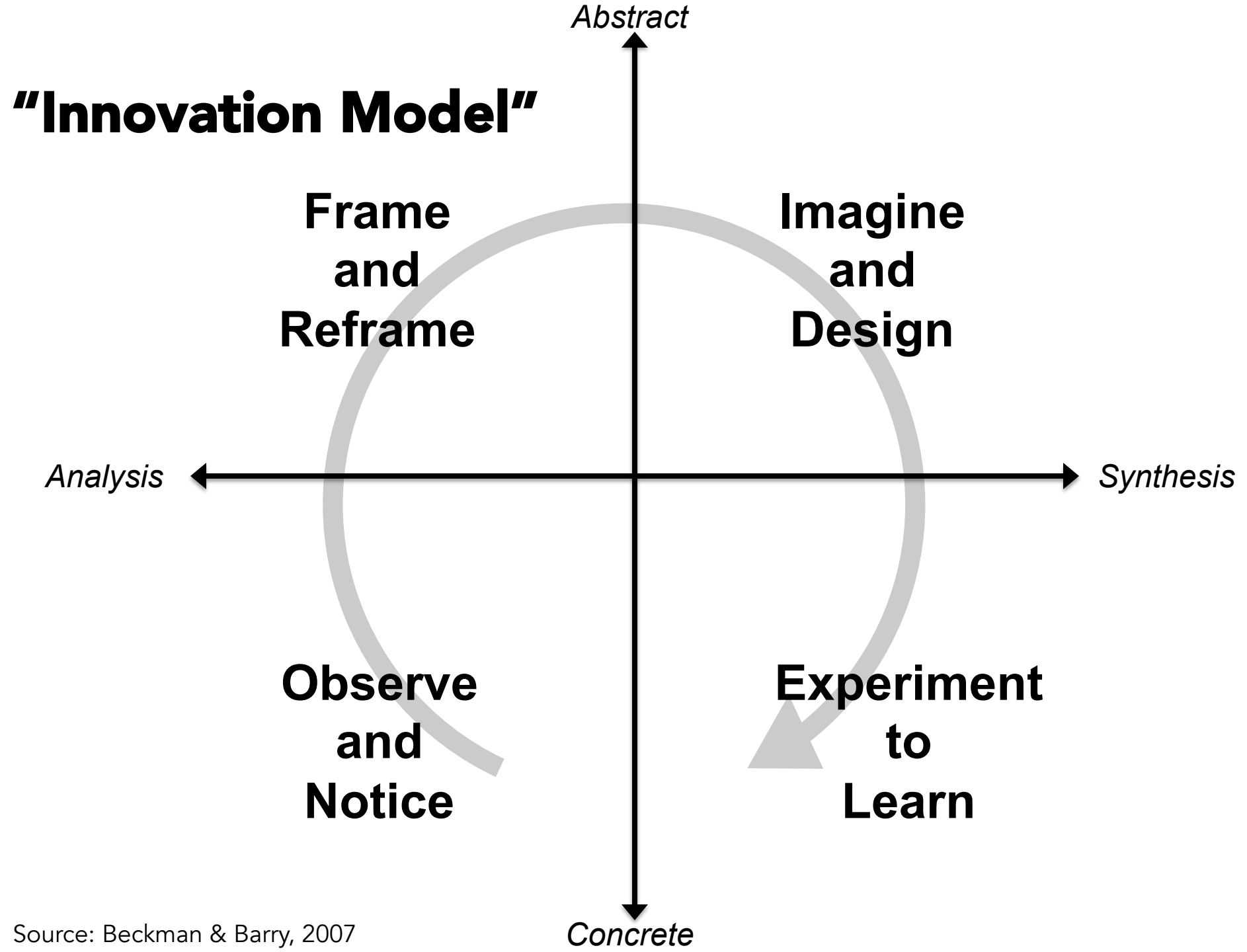
**Julia Kramer**

Berkeley  
institute  
of design



The goal of **theDesignExchange** is to support the design and design research community in **exploring, developing, learning and discussing** human-centered design.



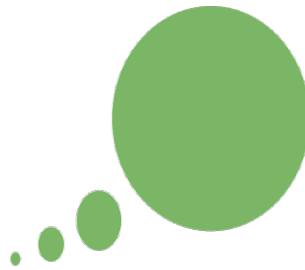




**RESEARCH**



**ANALYZE**



**IDEATE**



**BUILD**



**COMMUNICATE**

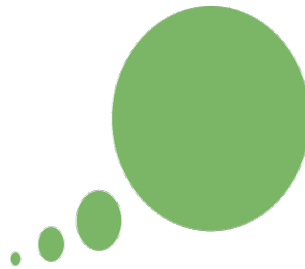
We have collected over **300 design methods**, and organized them into an ontology with five main categories.



**RESEARCH**



**ANALYZE**



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# Design Methods

- Three characteristics [1]:
  - Provides a specific way to proceed in a design process
  - Is general in that it can be used to solve more than one specific problem
  - Is observable in its use

[1]: Roozenburg & Eekels, 1995

[2]: Jagtap, Warell, Hiort, Motte, & Larsson, 2014

# Design Methods

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- Benefits:
  - Provide structure to a fuzzy open-ended process
  - Support designers in accomplishing goals systematically
  - Have been linked to successful outcomes in design practices [2]

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- Benefits:
  - Provide structure to a fuzzy open-ended process
  - Support designers in accomplishing goals systematically
  - Have been linked to successful outcomes in design practices [2]
- But, they're not used!
  - Designers aren't aware
  - Methods aren't taught with interdisciplinary lens
  - Methods aren't taught in context

[1]: Roozenburg & Eekels, 1995

[2]: Jagtap, Warell, Hiort, Motte, & Larsson, 2014

# **Example Design Method: AEIOU**

**Activities,  
Environments,  
Interactions,  
Objects, and  
Users**

# Example Design Method: AEIOU

(time)	Activities	Environments	Interactions	Objects	Users

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2:30	<ul style="list-style-type: none"><li>- Waiting in line</li><li>- Exchange of money for services</li><li>- Midwives counseling patients</li></ul>	<ul style="list-style-type: none"><li>- Private clinic area</li><li>- Public waiting area</li></ul>	<ul style="list-style-type: none"><li>- Women talking with midwives to check in</li><li>- Women paying midwives for services</li></ul>	<ul style="list-style-type: none"><li>- Cash box</li><li>- Pamphlets of materials</li></ul>	<ul style="list-style-type: none"><li>- Women seeking contraceptive counseling</li><li>- Midwives providing contraceptive counseling</li></ul>

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2:40	<ul style="list-style-type: none"> <li>- Woman is called for arm bar contraceptive placement</li> </ul>	<ul style="list-style-type: none"> <li>- Partitioned exam area</li> </ul>	<ul style="list-style-type: none"> <li>- Midwife swabs arm</li> <li>- Midwife opens sterile packages</li> <li>- Midwife inserts arm bar</li> </ul>	<ul style="list-style-type: none"> <li>- Jadelle arm bar contraceptive device</li> <li>- Sterile instruments</li> <li>- Sterile examination table</li> </ul>	<ul style="list-style-type: none"> <li>- Woman receiving contraceptive implant</li> <li>- Midwife performing implant procedure</li> </ul>

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**How can we understand  
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**... in particular, the context  
of global development**



# Design for Development

## **Things we know:**

- Successful engineering feats: largely been made by and designed for the Global North [3, 4]
- Engineers and designers are increasingly tasked to address complex challenges plaguing our world

[3] NAE "Grand Challenges for Engineering," 2008

[4] Polak, 2008

# Design for Development

## **Things we know:**

- Successful engineering feats: largely been made by and designed for the Global North [3, 4]
- Engineers and designers are increasingly tasked to address complex challenges plaguing our world

## **Things we don't know:**

- How can we support engineers and designers around the world, not just in the Global North, to work on addressing these challenges?
- How can we leverage the human-centered design framework to address global challenges?

[3] NAE "Grand Challenges for Engineering," 2008

[4] Polak, 2008

**Our goal is to build  
theDesignExchange to be a  
platform to support designers  
around the world in choosing  
appropriate design methods to  
address complex design  
challenges.**



# How?

300+ design methods  
descriptions and  
instructional guides

# How?

80+ contextualized  
global development  
case studies

300+ design methods  
descriptions and  
instructional guides

# How?

[Case Studies](#)[Methods](#)[Collections](#)[About](#)[Sign In](#)

Where designers and researchers share methods and best practices.

[JOIN](#)

## Learn

Browse methods and case studies to improve your design skills. Learn what to do and what to not do to successfully complete your next design task.

## Invite

Participate in discussions and invite your friends to join theDesignExchange community!

## Case Studies

Read about how real design problems were solved.

### Adapting Usability Testing for Oral, Rural Users

The study is conducted to analyze whether usability methods can be implemented in communities that are distant in multiple ways. The design team focused on oral, rural communities to improve the use of communicative devices between users.



## Methods

Learn about the methods you could use on your next design.

### Cultural Probes

Cultural Probes are used to gain insight into and inspirational responses about the daily life and habits of communities.



# Finding Examples of Design for Development

- Systematic literature review of human-centered design for development
  - 15 keyword pairs
    - “human-centered design” + {something about development, e.g. developing countries, low-resource settings}
  - Publish or Perish [5] to search over Google Scholar
- **1441 papers**

# Finding Examples of Design for Development

1441

877

760

Cut papers cited 0 times if published before 2014

Cut books

Cut:

- Papers not about HCD+D
- Papers not available in English
- Papers not accessible online or in Berkeley library

282

Cut:

- Papers not classified as a case study or experiment
- Papers without a place of work
- Papers not peer-reviewed

128

Cut papers where authors not engaged in design work

83



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**83 peer-reviewed academic examples of on-the-ground human-centered design for development work**



**Caption from Source:** "Typical setting for a usability study"

Source: "Adapting usability testing for oral, rural users" by Gorman et al, 2011



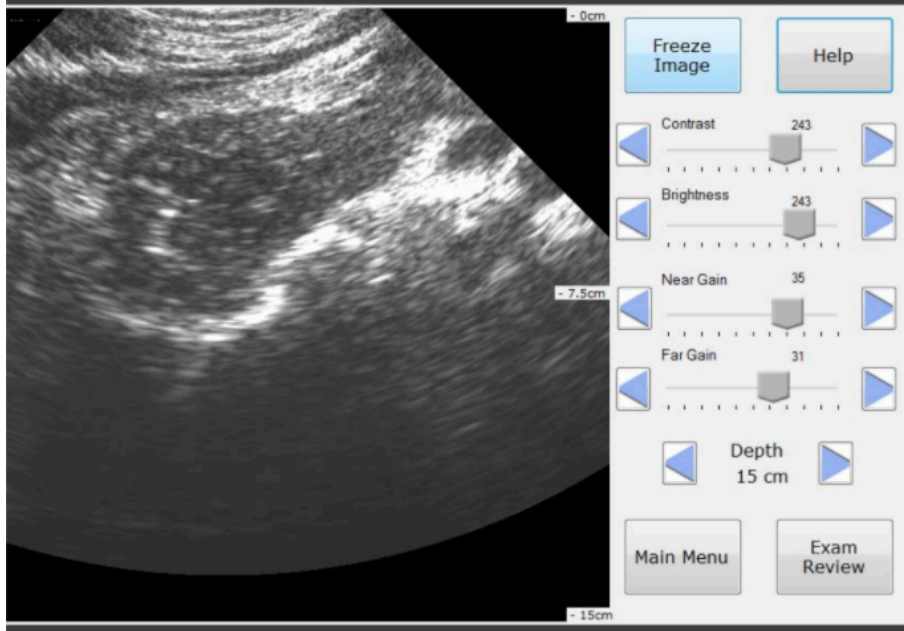


**Caption from Source:** "Typical setting for a usability study"

Source: "Adapting usability testing for oral, rural users" by Gorman et al, 2011



**Caption from Source:** "Prototype platform consisting of USB probe and netbook (above). Ultrasound scanning screen of the prototype simplified UI (below)."



Source: "Portable antenatal ultrasound platform for village midwives" by Brunette et al, 2010

# Writing Case Studies of Design for Development

1. **Author characteristics:** Names? Locations?
2. **Project focus area:** What kind of project is this? (e.g., education or global health)
3. **Country:** Where is the work being done?
4. **Parts of the design process covered:** Research? Analyze & Synthesize? Ideate? Build? Communicate?
5. **The Problem:** What is the problem these authors are working to address?
6. **Project Background:** How was the project conceived? How long has it been happening?
7. **Summary of Design Process:** In brief, what did the team do?
8. **The Process:** In detail, what methods did the team use?
9. **Retrospective:** What did the team learn? What are the next steps?

# Design Methods in the Case Studies

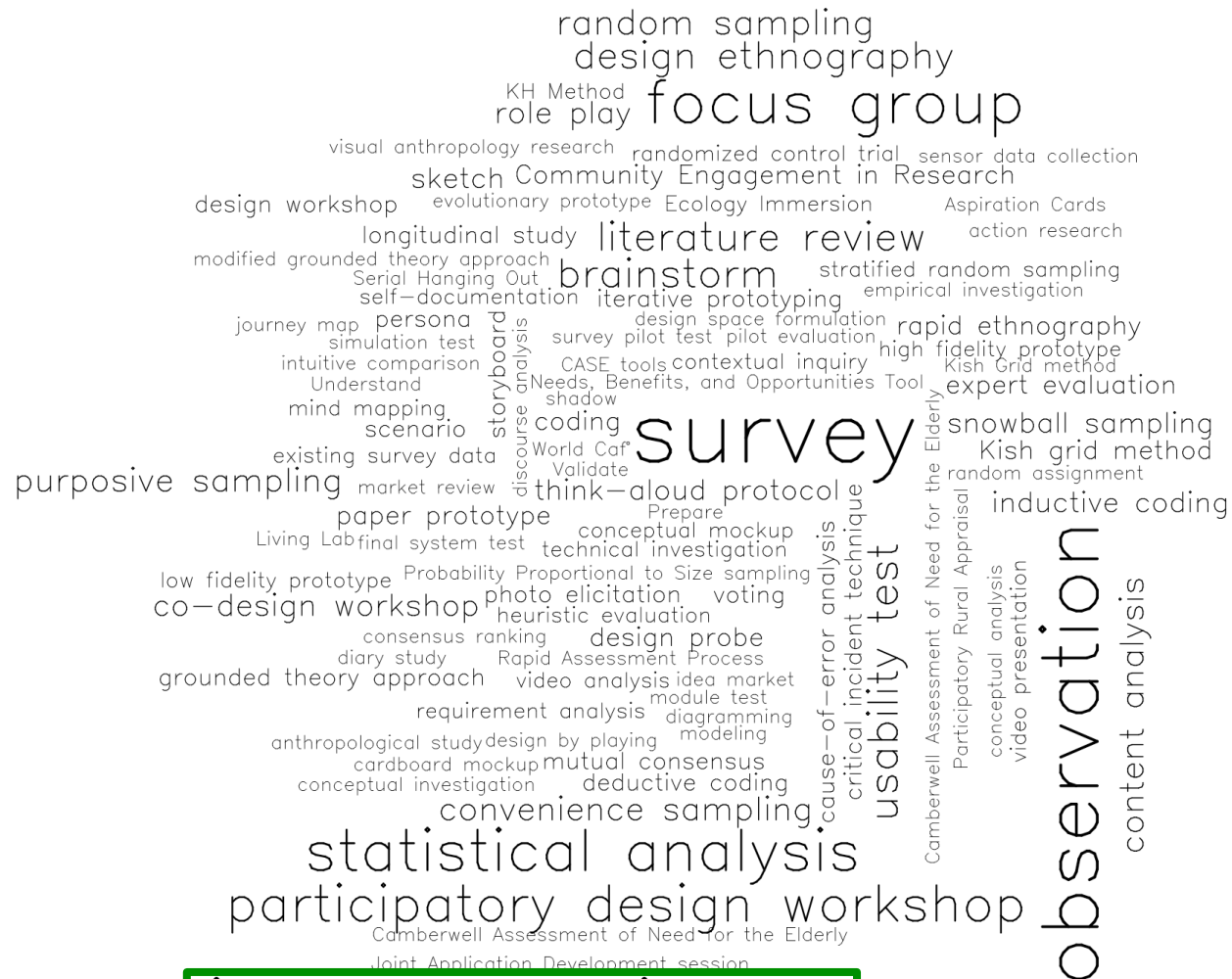
Methods were used  
**431** times

**119** unique methods  
were used

# Design Methods in the Case Studies

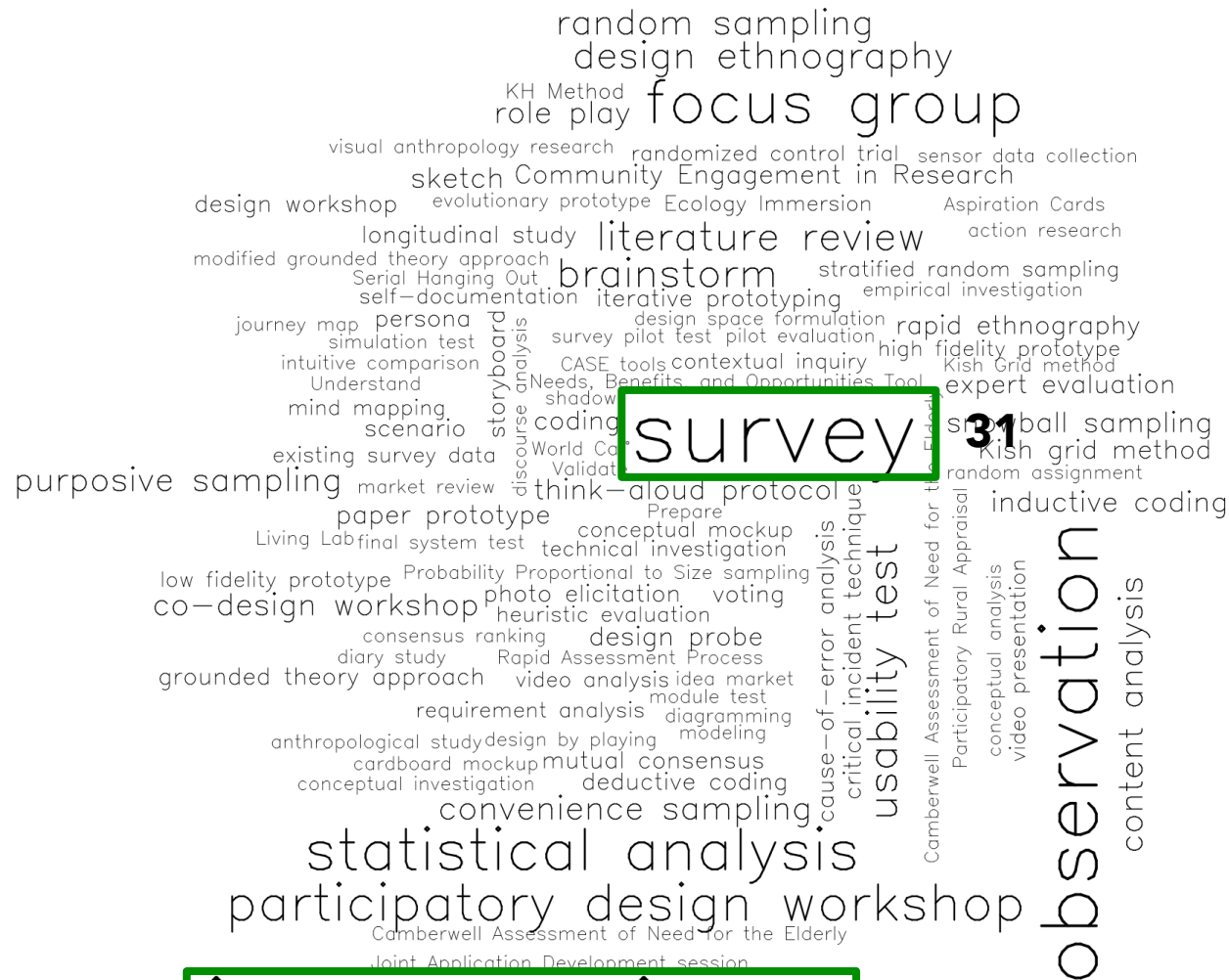


# Design Methods in the Case Studies





# Design Methods in the Case Studies



# Design Methods in the Case Studies



# Next Steps



## Short-term:

- Continue writing and updating case studies on theDesignExchange
- Continue writing method descriptions on theDesignExchange



## Mid-term:

- Find more case studies from community members
- Find case studies in other contextual areas
  - Sustainable design
  - Inclusive / Universal design



## Long-term:

- Study how designers use theDesignExchange
- Build more features to support global designers

Thank you!

**QUESTIONS?**