

### HUMAN-CENTERED DESIGN FOR DEVELOPMENT

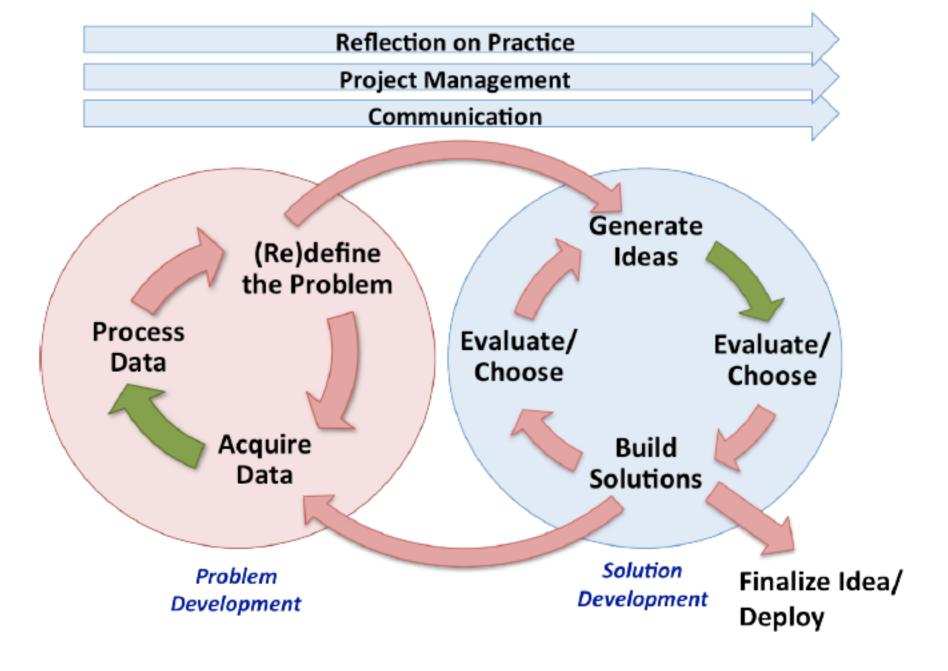
BEST Lab Presentation Friday, November 4, 2016

Julia Kramer

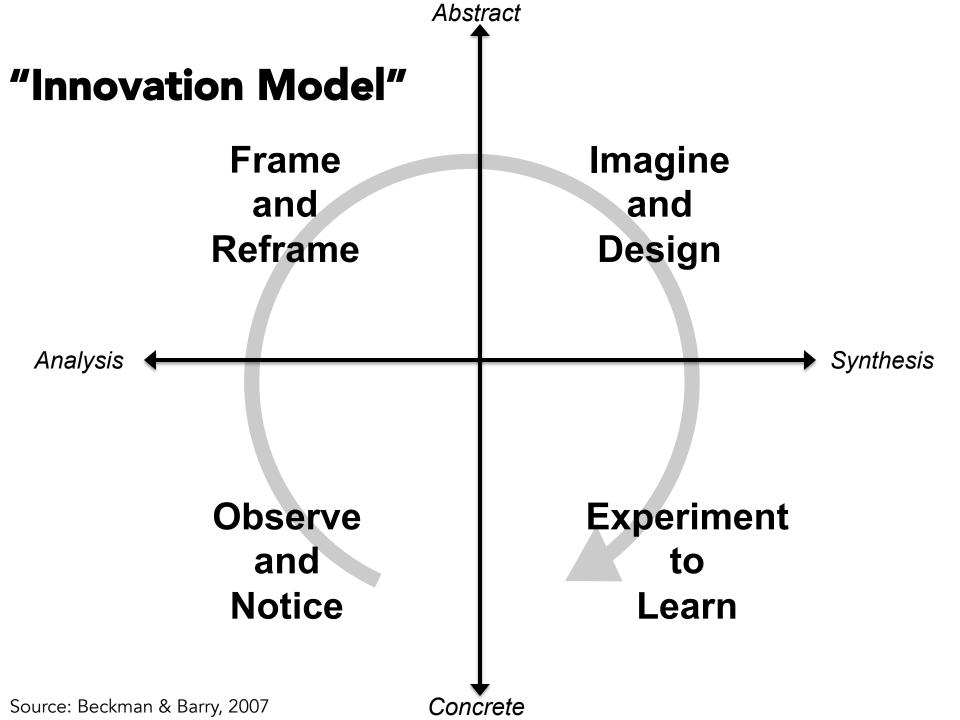
# Berkeley institute of design

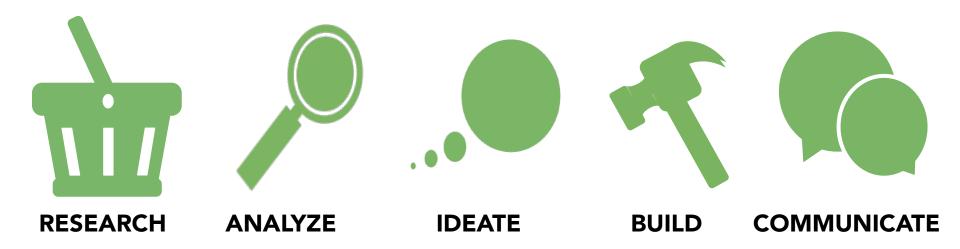


The goal of the Design Exchange is to support the design and design research community in exploring, developing, learning and discussing humancentered design.

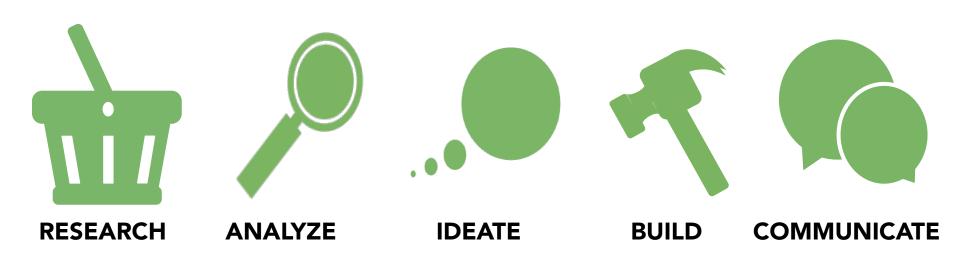


Source: Roschuni, 2012





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



### 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

<sup>[2]:</sup> Jagtap, Warell, Hiort, Motte, & Larsson, 2014

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  - 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
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  - 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

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Activities, Environments, Interactions, Objects, and Users

(time)	Activities	Environments	Interactions	Objects	Users

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2:30	<ul> <li>Waiting in line</li> <li>Exchange of money for services</li> <li>Midwives counseling patients</li> </ul>	<ul><li>Private clinic area</li><li>Public waiting area</li></ul>	<ul> <li>Women talking with midwives to check in</li> <li>Women paying midwives for services</li> </ul>	<ul> <li>Cash box</li> <li>Pamphlets of materials</li> </ul>	<ul> <li>Women         seeking         contraceptive         counseling         Midwives         providing         contraceptive         counseling</li> </ul>

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2:40	- Woman is called for arm bar contraceptive placement	- Partitioned exam area	<ul> <li>Midwife swabs arm</li> <li>Midwife opens sterile packages</li> <li>Midwife inserts arm bar</li> </ul>	<ul> <li>Jadelle arm bar contraceptive device</li> <li>Sterile instruments</li> <li>Sterile examination table</li> </ul>	<ul> <li>Woman receiving contraceptive implant</li> <li>Midwife performing implant procedure</li> </ul>

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# How can we understand how design methods are used in context?

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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

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- 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?

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 the Design Exchange community!

#### Case Studies

Read about how real design probems were solved.

#### Methods

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

#### 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.





# Finding Examples of Design for Development

- Systematic literature review of humancentered 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

282

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

#### Cut:

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

Cut papers where authors not engaged in design work

83

128

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128

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83 peer-reviewed academic examples of <u>on-the-ground</u> human-centered design for development work

282



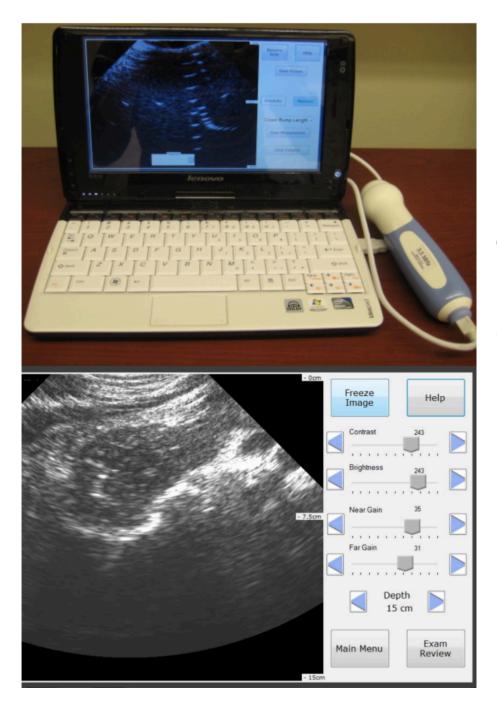
**Caption from Source**: "Typical setting for a usability study"

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



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**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 <u>methods</u> did the team use?
- **9. Retrospective:** What did the team learn? What are the next steps?

Methods were used **431** times

119 unique methods were used

random sampling design ethnography

KH Method FOCUS GROUP

visual anthropology research randomized control trial sensor data collection sketch Community Engagement in Research design workshop evolutionary prototype Ecology Immersion Aspiration Cards longitudinal study literature review action research modified grounded theory approach brainstorm str Serial Hanging Out brainstorm str self-documentation iterative prototyping stratified random sampling empirical investigation journey map persona Domesimulation test pilot evaluation high fidelity prototype intuitive comparison of CASE tools contextual inquiry high fidelity prototype intuitive comparison of the compa CASE tools contextual inquiry high fidelity prototype Kish Grid method Sheeds, Benefits, and Opportunities Tool expert evaluation Understand shadow mind mapping coding 6 existing survey data World Caf Kish grid method random assignment purposive sampling market review to think-aloud protocol inductive codina paper prototype conceptual mockup Living Labfinal system test technical investigation low fidelity prototype Probability Proportional to Size sampling by depicts worked a photo elicitation voting co-design workshop photo elicitation voting heuristic evaluation <u>></u> consensus ranking design probe diary study Rapid Assessment Process 0 grounded theory approach video analysis idea market module test requirement analysis diagramming anthropological studydesign by playing modeling cardboard mockup mutual consensus convenience sampling of stical as a second state of the second se conceptual investigation deductive coding Camberwell Assessment of Need for the Elderly Joint Application Development session

random sampling design ethnography

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visual anthropology research randomized control trial sensor data collection sketch Community Engagement in Research design workshop evolutionary prototype Ecology Immersion Aspiration Cards longitudinal study literature action research modified grounded theory approach brainstorm str Serial Hanging Out brainstorm self-documentation iterative prototyping stratified random samplina empirical investigation design space formulation rapid ethnography simulation test of survey pilot test pilot evaluation high fidelity prototype tive comparison of CASE tools contextual inquiry kish Grid method 5 Needs, Benefits, and Opportunities Tool expert evaluation Understand shadow mind mapping coding c existing survey data World Caf Kish grid method purposive sampling market review # think-aloud protocol random assignment inductive codina paper prototype conceptual mockup Living Labfinal system test technical investigation low fidelity prototype Probability Proportional to Size sampling co-design workshop photo elicitation voting heuristic evaluation <u>0</u> consensus ranking design probe diary study Rapid Assessment Process 0 grounded theory approach video analysis idea market module test reauirement analysis diagramming anthropological studydesign by playing modeling cardboard mockup mutual consensus conceptual investigation deductive coding convenience sampling  $\bar{\mathbb{S}}$ Camberwell Assessment of Need for the Elderly

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random sampling design ethnography

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### **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 the Design Exchange
- Build more features to support global designers

# Thank you! QUESTIONS?