Developing Fresh Ideas
With Design Thinking

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Design Thinking / User Centered Design
Design Thinking Skills

How to think about how to solve life’s problems

Herbert Simon, in the "Sciences of the Artificial" (MIT Press, 1969) defined "design" as the "transformation of existing conditions into preferred ones" (p. 55).
Introduction to Design Thinking

David Kelley, Founder, d.school

David Kelley is the founder and chairman of IDEO. He also founded Stanford University’s Hasso Plattner Institute of Design, known as the d.school. As Stanford’s Donald W. Whittier Professor in Mechanical Engineering, Kelley is the Academic Director of both the degree-granting undergraduate and graduate programs in design within the School of Engineering, and has been a professor in the program for more than 35 years. He is a graduate of Carnegie Mellon University and earned his master’s degree from Stanford University in Engineering/Product Design. Kelley’s work has been acknowledged with numerous design awards, and in addition to being inducted into the National Academy of Engineering, he holds honorary PhD’s from both the Thayer School of Engineering at Dartmouth and Art Center College in Pasadena. Widely known for teaching human-centered design methodology and design thinking to students and business executives, Kelley and his brother Tom co-authored the New York Times best-selling book, Creative Confidence: Unleashing the Creative Potential Within Us All.
What is Design Thinking?

A way of thinking and doing that takes a creative, iterative and hands on approach to solving problems
Always about the creative process and building up ideas

Design thinking is an ongoing creative process about building up ideas (unlike critical thinking, which is a process of analysis and is associated with the 'breaking down' of ideas).
Always open to new ideas

There are no judgments in design thinking and thus no fear of failure.

Wild ideas are welcome, these often lead to the most creative solutions.
Always encourages participation

Design thinking calls for maximum input from everybody on the team ...
... everybody participates
Always linked to an improved future

This is where the concept of iterative design comes into the process.

We iterate to constantly improve and react / adapt / predict changes in the environment
The Design Thinking Methodology Model

1. **EMPATHY**: Learning about the audience for whom you are designing.

2. **DEFINE**: Redefining and focusing your question based on your insights from the empathy stage.

3. **IDEATE**: Brainstorming and coming up with creative solutions.

4. **PROTOTYPE**: Building a representation of one or more of your ideas to show to others.

5. **TEST**: Returning to your original user group and testing your ideas for feedback.
Technique - Developing a User Persona

- User personas help teams with idea generation
- Personas help designers to empathize with their intended audience
  - What does a day in the life of this person entail…?
  - What motivates this person to action…?
What is a Persona?

- In user-centered design and marketing, a persona is a fictional character created to represent a user type that might use a site, brand, or product in a similar way.

- The persona is generally based on user research and incorporates the needs, goals, and observed behavior patterns of your target audience.
Why Personas?

**In software design**
To empathize with your **user** and learn their wants, needs, and pain points in order to **build a better interactive experience**.

**In organizational design**
To empathize with your **stakeholder** and learn their wants, needs, and pain points in order to **provide targeted services and improve satisfaction**.
Examples

Clark Andrews

Age: 26
Occupation: Software Developer
Status: Single
Location: San Jose, CA
Tier: Experiment Hacker
Archetype: The Computer Nerd

Motivations
- Incentive
- Fear
- Achievement
- Growth
- Power
- Social

Personality
- Extrovert
- Introvert
- Sensing
- Intuition
- Thinking
- Feeling
- Judging
- Perceiving

Goals
- To cut down on unhealthy eating and drinking habits
- To measure multiple aspects of life more scientifically
- To set goals and see and make positive impacts on his life

Frustrations
- Unfamiliar with wearable technology
- Saturated tracking market
- Manual tracking is too time consuming

Bio
Aaron is a systems software developer, a "data junkie" and for the past couple years, has been very interested in tracking aspects of his health and performance. Aaron wants to track his mood, happiness, sleep quality and how his eating and exercise habits affect his well being. Although he only drinks occasionally with friends on the weekend, he would like to cut down on alcohol intake.
Family-Focused
Carol Berk
46 Years Old | Married, 2 Children | Small Business Owner

Carol is a 46 year old mother who owns and operates a small business in San Francisco, CA. She loves keeping in touch with her children and extended family and doing what she can to make sure that they are happy and healthy. She is a visual person and enjoys the range of photographic options that Instagram offers. Her access to and especially likes browsing dog photos. Additionally, she is an avid poster of family photos and actively shares pictures of her children and relatives with a tight circle of friends and family.

Needs & Goals
- Enjoy receiving personalized messages from her children
- Technology that is easy-to-use
- Affordable pricing
- Customization options

Pain Points
- Privacy, she wants only a select group to see what she shares
- Not receiving enough communications from her children
- Printing companies that require in-store pick-up
- Slow loading times that prevent her from accessing what she needs in her limited downtime

Instagram Usage & Behavior:
- Uses 3-5 times per week
- Views slightly more than 30 posts

Behaviors:
- Uses social media to communicate her life to friends and family
- Posts and shares photos
- Loves using Facebook to talk to family and friends
- Keeps her photos private, only shares with a select network of friends and family
- Likes to give photo-related items as gifts

Current Printing Habits:
- Prints photos several times per year for gifts in the form of greeting cards and photo books
- Generates individual prints to compile in albums at home

What Could Effect Current Printing Habits (+/-):
- Ability to compile photos in to a book or other format
- Ability to send/receive printed items with personalized messaging

“The thought of printed, hard-copy photos of memorable moments is still appealing to me, especially as a gift”
Your Turn… As a group, develop an RU Alumni Persona

1. Look at your drawing from the beginning of this session that lists your members wants and needs

2. Brainstorm with your group and come up with one example of an RU Alumni (new to area, middle-aged woman, recent grad, engineering student, etc).

3. Use the Persona Template as a guide to develop a persona for this member
   i. be creative
   ii. think about their everyday life experience
   iii. what are their driving motivations and pain points?

4. Be prepared to present to the larger group
<table>
<thead>
<tr>
<th>Customer Name &amp; Image:</th>
<th>Demographic:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bio/Journey/Story:</td>
<td>Goals/Jobs</td>
</tr>
<tr>
<td>Motivations/Gains:</td>
<td>Frustrations/Pains</td>
</tr>
</tbody>
</table>

Template

www.pivotbot.com
Design Thinking Stage One - *Empathize*

- Research your user’s needs
- Engage in conversation - dialogue, surveys, etc...
- Immerse yourself in the person’s everyday life experience

What the empathize stage looks like in real world
Q: What do you do in Stage One - Empathize?
A: You Identify the right problem

- Defining the right problem to solve is the most important aspect.
- Be like a little kid and constantly keep asking why? why? why?
- Ask why 5 times… by the fifth time you will get to the heart of the problem.
Design Thinking Stage Two: Define

- Synthesize ideas
- Understanding who the user is central to solving the problem
- Develop a point of view
- Observation is the key - get out there and watch people do the work
- Ask yourself…. what could this look like? What could this do?

What the definition stage looks like in the workplace
Q: What do you do in Stage Two - Define?
A: You define all the options to solving the problem

- Create and consider lots of options...
  - don’t get locked into going a certain direction too early

- Better answers happen when...
  - 5 people work on a problem for a one day, than one person working on a problem for five days
Design Thinking Stage 3 - *Ideate*

- Generate new ideas
- Explore how the ideas fit together
- Imagine how things could be

What the ideate stage looks like in real world
Q: What do you do in Stage Three - Ideate?
A: You nurture ideas and refine direction

Even the strongest of new ideas can be fragile in their infancy

Encourages experimentation - no idea is too far out to be discussed

Views mistakes and failures as a necessary part of the learning process
Design Thinking Stage - *Prototype*

- Make ideas physical
  - User interface
  - User experience

- Iterative by nature
  - Low - Paper or whiteboard
  - Mid - Interaction flow
  - High - Look and feel
Q: What do you do in Stage Four - Prototype?
A: You choose a direction and get started

1. Choose a direction and commit resources
2. Get started by developing a low fidelity prototype
   a. Interaction flow and user experience is most important at this time … not graphical design
3. Refine the interaction and use a tool to create a medium fidelity prototype - does this solve the problem?
4. If it does, create a high-fidelity prototype - one that you can hand off to graphic designers and developers
Design Thinking Stage - Test

- Gather feedback from users
- Figure out what they like, dislike, or is missing.
  - What can they do?
  - What can’t they do that they want to do?
Q: What do you do in Stage Five - Test?
A: You solicit and incorporate feedback

- Once you have your prototype it’s time to unleash it on the world

- Learn what works and what doesn’t, and then iterate.
THEN ITERATE ...again and again and again ....

- To iterate means going back to your prototype and modifying it based on feedback.
Overview of design process

In theory (but not in this workshop) you would go through these 5 steps in order…

- Empathize – observe, engage, immerse
- Define – synthesize, understand, develop point of view
- Ideate – generate, explore, flexibility

**BEFORE you begin prototyping and testing**…

- Prototype - make ideas physical, interactive, rapid
- Test - get feedback - fix problems - refine interactions
Resources

Online

- https://www.ideou.com/blogs/inspiration/what-is-design-thinking
- https://www.interaction-design.org/literature/article/what-is-design-thinking-and-why-is-it-so-popular

Books

Kelley, Tom. *The Art of Innovation: Lessons in Creativity from IDEO, America’s Leading Design Firm*. 2001. Tom Kelley, general manager of the Silicon Valley based design firm IDEO, takes readers behind the scenes of this wildly imaginative and energized company to reveal the strategies and secrets it uses to turn out hit after hit.

Krug, Steve. *Don’t Make Me Think!* 2014. In this entertaining and insightful analysis, cognitive scientist Donald A. Norman hails excellence of design as the most important key to regaining the competitive edge in influencing consumer behavior.
Always about applying design to solve life’s problems

“Everyone is a designer.”

— Tim Brown
QUESTIONS / COMMENTS?

THANKS FOR ATTENDING OUR WORKSHOP