**Suggested Use**

This document adds background to design thinking. It might be helpful for those new to the approach. Use the Stanford Design Thinking Resource to guide the actual design thinking process.

**Design Thinking**

“Design thinking is generally considered the ability to combine *empathy* for the context of a problem, *creativity* in the generation of insights and solutions, and *rationality* to analyze and fit solutions to the context” (Wikipedia, n.d.).

Design thinking aligns nicely with the Maker Movement by helping makers consider what they would like to create and what might be needed. It allows makers to “creatively attack the world’s greatest problems and meet people’s most urgent needs” (Hatch, 2014, p. 10). As Walt Disney is attributed to have said, “It is kind of fun to do the impossible!”

The process of design is a series of decisions that inform the user experience. “Design doesn’t just make things beautiful, it makes them work” (Dadich, 2013). In the 1980’s, Dieter Rams, an architect and a designer for Braun, became concerned with the seemingly “impenetrable confusion of forms, colors and noises” in the world around him. To help sort out what might be considered as *good* design, he drafted ten principles for good design (Vitsoe, 2013). They include

* Good design is innovative
* Good design makes a product useful
* Good design is aesthetic
* Good design makes a product understandable
* Good design is unobtrusive
* Good design is honest
* Good design is long-lasting
* Good design is thorough down to the last detail
* Good design is environmentally friendly
* Good design is as little design as possible.

Design thinking is a process for solving problems and typically consists of seven steps: *define, research, ideate, prototype, choose, implement*, and *learn*.

Define

* Decide what issue you are trying to resolve.
* Agree on who the audience is.
* Prioritize this project in terms of urgency.
* Determine what will make this project successful.
* Establish a [glossary](http://en.wikipedia.org/wiki/Glossary) of terms.

Research

* Review the history of the issue; remember any existing obstacles.
* Collect examples of other attempts to solve the same issue.
* Note the project supporters, investors, and critics.
* Talk to your end-users, that brings you the most fruitful ideas for later design.
* Take into account thought leaders' opinions.

Ideation

* Identify the needs and motivations of your end-users.
* Generate as many ideas as possible to serve these identified needs.
* Log your [brainstorming](http://en.wikipedia.org/wiki/Brainstorming) session.
* Do not judge or debate ideas.
* During brainstorming, have one conversation at a time.

Prototype

* Combine, expand, and refine ideas.
* Create multiple drafts.
* Seek feedback from a diverse group of people, include your end users.
* Present a selection of ideas to the client.
* Reserve judgment and maintain neutrality.
* Create and present actual working prototype(s)

Choose

* Review the objective.
* Set aside emotion and ownership of ideas.
* Avoid consensus thinking.
* Remember: the most practical solution isn't always the best.
* Select the powerful ideas.

Implement

* Make task descriptions.
* Plan tasks.
* Determine resources.
* Assign tasks.
* Execute.
* Deliver to client.

Learn

* Gather feedback from the consumer.
* Determine if the solution met its goals.
* Discuss what could be improved.
* Measure success; collect data.
* Document.

Although design is always subject to personal taste, design thinkers share a common set of values that drive innovation: these values are mainly creativity, ambidextrous thinking,teamwork, end-user focus, curiosity (Wikipedia, n.d.).

Stanford’s d.School offers a great series of resources on design thinking. Please explore <http://dschool.stanford.edu/dgift/>

**Tie to Education**

Increasingly educators are called upon to be designers of learning experiences. This is a shift from their previous roles as implementers or interpreters of curriculum. A good way to incorporate design thinking in the classroom is to use it to help students intentionally find linkages between authentic learning experiences and curricular problems.

Because of its emphasis on empathy, design thinking invites students to focus on human centred design and think about things worth considering. It aligns nicely with STEMx projects grounded in improving the human experience. Mitch Resnick, director of Lifelong Kindergarten at MIT’s Media Lab, suggests educators should incorporate the process of creative thinking – imagine, create, play, share, reflect (Resnick, 2007) in their practices as it “reflects the natural way that young children learn and play” (Martinez & Stager, 2013). Design thinking and creative thinking align quite nicely!

**References**

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