What is Design Thinking?

“Design Thinking” is a discipline that uses the creator’s sensibilities and methods to match people’s needs with what is technologically feasible and what is a viable business strategy. A customer-centric customer-value and market opportunity.” (Brown, 2000).

What is Sustainable Design?

Sustainable design is about using one’s imagination to intentionally create possibilities to potentially realize that considers the context of the whole system and all the dynamic parts as one (Park, 1999). Design scientist Buckminster Fuller laid out this idea as “Comprehensive Anticipatory Design Science” which we use synonymously with “sustainable design” (Fuller, 1999).

Applying Biomimicry to Innovation and Sustainable Design

Lessons learned through an MA in Sustainable Design thesis project

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What did we learn?

1. Biomimicry is good for having a method to start seeing nature differently and embedding an ethos of sustainability into your work.
2. Biomimicry is good for coming up with creative ideas and attacking environmental sustainability.
3. Biomimicry is best when combined with other methods to bring creative ideas to the real world (e.g., design, engineering, business skills) and for enabling sustainable development.
4. Biomimicry can greatly help advance the design/processing and in combination with other methods, it is a powerful tool for innovators hoping to achieve more truly sustainable solutions.

Why it matters

As we design everyday objects and systems, inventors and visionaries must work with nature and take responsibility for appropriate use of Earth’s finite resources. Nature proves to be regenerative, and our human-designed systems can be also if we use comprehensive (not silo) approaches to Human realignment with Nature. Humans are not a category or just a living thing on the Earth, we are an evolutionary process and integral part of the universe (Fuller, 1999). “Nature is trying very hard to make us succeed, but nature does not depend on us. We are not the only experiment.” - Buckminster Fuller

How might we take more comprehensive approaches?

As a part of (foot apart from) Nature, we must practice ways of attending to the human social systems that are key for bringing relevant solutions to market. Biomimicry is great for humans looking to Nature, but not necessarily for humans looking to other humans, addressing social sustainability issues. Without integrating ways to ‘make it relevant’ and ‘make it real’, innovation will fail when attempting to ‘make it responsible’.

How might we get there?

Practitioners of sustainability-focused design seek to ask different questions, targeted at uncovering systemic needs, and attending to environmental and social impacts, from which economic impacts are derived.

What’s next?

Evolving organizations that inform, engage, and build lasting capacity by creating businesses and products that are inspired by and work with Nature. At Biomimicry for Creative Innovation (BCI) and Minneapolis College of Art and Design (MCAD) we continue to create conditions conducive to practicing sustainability-focused design.

What is Biomimicry?

Biomimicry, the practice of emulating models and strategies found in Nature (Biomimicry 3.8, 2013) is one of many approaches used to create more sustainable solutions. Although the idea of “looking to Nature” is not new (many cultures are rooted in the idea), our conventional culture of today does not have tools for how to specifically attend to Nature. The methodology behind Biomimicry enables designers to see and learn from Nature in new ways (Biomimicry 3.8, 2013).

What else is needed?

As we discovered, Biomimicry can greatly enhance the design process, but ultimately needs other methodologies and areas of expertise to bring bio-inspired ideas into the “real world”. Biomimicry is best used in combination with processes that help designers also attend to: social and business needs, and “real” impact assessments, when considering the measurable and non-measurable components of the whole system.

How might the ideas behind Biomimicry Seed More Sustainably-Designed Solutions?

The methodology behind Biomimicry enables designers to see and learn from Nature in new ways (Biomimicry 3.8, 2013).

What did we do?

Biomimicry (as applied to design thinking) was used to design a more sustainable water treatment system, called SoilDrop. The resulting design idea and business plan was submitted to the Biomimicry Student Design Challenge and was a finalist at the Global Biomimicry Conference 2013 in Boston. This project intended to uncover the challenges faced and lessons learned from integrating Biomimicry into the innovation process when conceptualizing sustainable design solutions. This work was conducted for an MA thesis project in Minneapolis College of Art and Design’s online Master’s in Sustainable Design program.

Why is Biomimicry a good idea?

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3. Biomimicry is best when combined with other methods to bring creative ideas to the real world (e.g., design, engineering, business skills) and for enabling sustainable development.
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