Silicon Valley Japan Platform
Monthly Benkyokai Meeting
March 2017

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SVJP March 2017 Benkyokai Report

Theme   **"**Empathy: The Key to Design Innovation"
Speakers: *Dr. Larry Leifer,* Professor of Mechanical Engineering, Stanford University and
                Founding Director, Center for Design Research, Stanford University

                Rieko Yajima, Visiting Research Scholar, Center for Design Research, Stanford University
Moderator: Greg Caltabiano, Executive Committee Member, SVJP

Speaker Bios

Larry Leifer

Dr. Leifer's engineering design thinking research is focused on instrumenting design teams to understand, support, and improve design practice and theory. Specific issues include: design-team research methodology, global team dynamics, innovation leadership, interaction design, design-for-wellbeing, and adaptive mechatronic systems.

Once a design student himself at Stanford University, Dr. Leifer has started many design initiatives at Stanford including the Smart-Product Design Program, Stanford-VA Rehabilitation Engineering Center, Stanford Learning Laboratory, and most recently the Center for Design Research (CDR). A member of the Stanford faculty since 1976, his research themes include:

1. Creating collaborative engineering environments for distributed product innovation teams;
2. Instrumentating that environment for design knowledge capture, indexing, reuse, and performance assessment;
3. Design-for-wellbeing, socially responsible and sustainable engineering.

Rieko Yajima (rieko@stanford.edu and rxy120@gmail.com)

Rieko Yajima is a biochemist with interests that lie at the intersection of science and society, which include design and policy. She is currently a visiting research scholar at the Center for Design Research at Stanford University to investigate how Design Thinking Paradigms can catalyze scientific research and innovation. Previously, she worked for the American Association for the Advancement of Science (AAAS), in Washington, DC, where she advised the scientific community on research collaboration, implementation, and evaluation. In 2015, Yajima was elected to the Global Young Academy, a rallying point for outstanding young scientists from around the world to come together to address topics of global importance. She holds a doctorate degree in integrative biosciences from The Pennsylvania State University and served as a science policy fellow at the National Academy of Sciences.
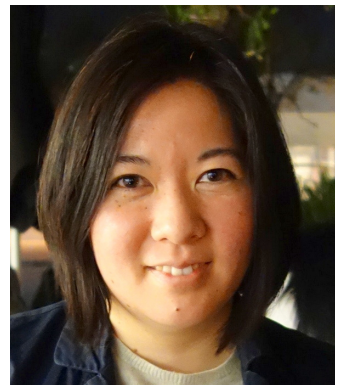

Key Takeaways:

- To change an organization, it must incorporate empathy into its company culture
- Transitioning to a Design Thinking approach in Japan would be difficult, but not impossible
- Creating an open, receptive environment where it is safe to take risks and fail produces the most successful teams

Synopsis

At the beginning of the meeting, the participants were encouraged to participate by asking questions after the panel introductions.

Larry compared his life to the image that depicts the evolution of man, which begins with a chimpanzee and ends with a man slumped over a computer. Originally, he designed surfboards, then went to Stanford, went to Florence, got an art degree, then a PhD, worked at NASA, got a job in Zurich, got fired there, and came back to Stanford and now spends his time at a keyboard.
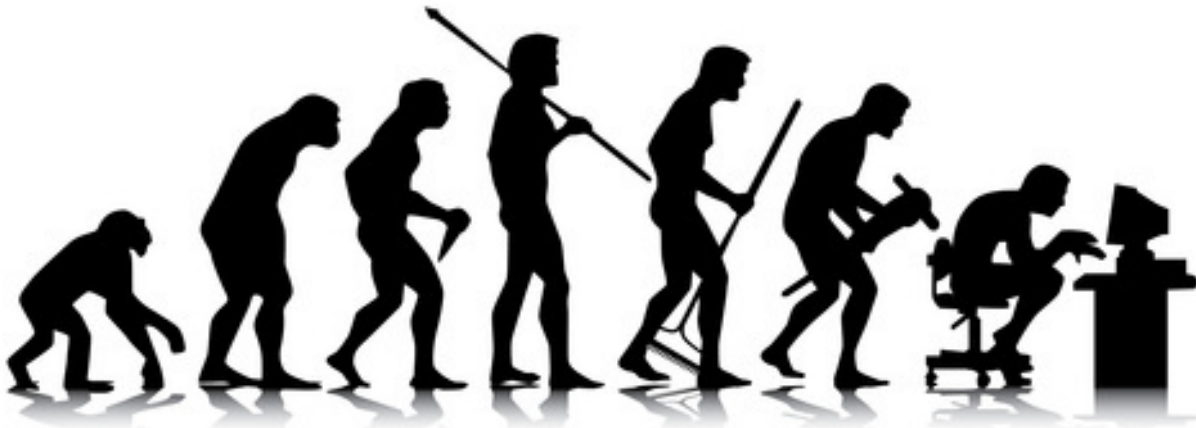
Reiko is a biochemist by training. She worked in Washington DC for a few years in policy and wanted to look at R&D from a new angle. She visited a lot of universities, in particular the Rhode Island School for Design. While there she learned, for the first time, that design was a process. Mostly design is tangible products, but she questioned how we got to that process. She realized that when it comes to design there were two very important points; the first is that you must find the right problem to work on, and the second, you must be intentional about the changes you want to create.

Larry talked about how you create breakthrough innovation. The teams that come up with the most ideas usually end up coming up with some of the best ideas. The ones that come up with 40 questions per hour create breakthroughs. The ones that come up with 20 questions per hour just end up with "thank yous."

There was a question about how to create change. Larry says that if you have the right stimulus, it only takes about 7 seconds to create change. If you never get to the right stimulus it takes decades. What is the right stimulus? Something tangible will beat words, graphs and sketches. Rieko mentioned that the scientific community is very hard to change. The major stimulus for this community would be the threat of losing funding, for example. Others could be prestige or awards. But until these incentives or stimuli shift towards more collaboration across disciplines, it would be very hard to change. At the Center for Design Research they are trying to challenge people to change by bringing science and design together. However, it is difficult to bring these two different world views together. There is an educational gap because these two disciplines have been kept apart for so long. They need to understand one another and then figure out what each is empowered to do or what actions to take next. Change will start with people who have a healthy amount of openness and skepticism.

Another question asked what practices make an organization effective from a design perspective and how this effectiveness is measured. Based on Larry's research, the best teams are 3-4 groups of 3-4 people. From that, if you have the right people, 60% of the projects will create breakthroughs. However, the ratio of those breakthroughs that get adopted by the corporation is 5 out of 100 or 5%. To measure the success of an organization that is trying to break through we should look at their failure rate. The more tries and failures, the more likely they are going to get the right idea.

There was a question about how to integrate design into the business community culture. Rieko mentioned that there are three pillars required to function in design.

1. Design Thinking-This is the process. How do we incorporate design practice into our every day practice?
2. Doing-Making things tangible to make sure your idea matches your reality.
3. Culture-The culture piece is the hardest to understand. The Stanford Center for Design Research is different because of its willingness to build things from scratch. The freedom to create what you want is a blessing, but being able to create in chaos is important.

Actually, the d.school believes to change an organization one must have empathy. The d.school strives to teach empathy, not design. For those who take courses at the d.school, they are not expected to come out as better designers, rather as better empathizers.

The panel then discussed ideas on how to change Japan. The consensus was that it would be very hard. Many Japanese companies have been around for over 100 years. The traditional ways of doing things has actually worked up until now. Going forward, that will probably not be the case, but it will be very hard to change.

Can Design Thinking work in Japan? Many people in Japan are interested in Design Thinking. On the one hand, it does not work because many Japanese ask, "Why are we doing this?". There are limitations that are placed if one just focuses on the process. It is challenging to have a vested interest if one can't see where it is going. Also, hierarchical authority, a strong notion for consensus, longevity at the workplace leading to resistance to change, and fear of risk are limitations. The culture makes it very difficult.

On the other hand there are elements of Design Thinking that Japanese do very well such as visualization and prototyping and incremental improvement (kaizen). Japanese are very empathetic to other cultures as well. Japan does not need to change completely because Japan does a lot of things well from which even Silicon Valley can learn. The trick is to figure out what works well and what are the ways it can be augmented.

A question was asked about whether or not innovation could be divided into two sections, hardware and software. Japan has succeeded in the hardware industry but has failed in the software industry. Larry answered by saying if software teams make their software tangible, literally put their thinking out on the table, it becomes a version of communication. The more tangible the communication the better.

Rieko pointed out that IBM is placing a big bet on design by focusing much of their business on Design Thinking. They do not talk about products as much anymore but how their services can impact their customers. Design Thinking and, of course empathy, will be a key success to this change.

The conversation then returned to empathy. If you have empathy, you are not listening to what the customer is saying that they want. Rather, you actually understand at a basic level, what they need.

Fortunately, empathy is learnable. Given that it is learnable, makes it teachable. A basic teaching tool at Stanford's d.school is to have students (in small groups) design something for one another—such as a wallet. To do that, design students must be able to understand what their fellow design students need. They need to ask what features their fellow students wish to have. Then, after knowing that, they can design several prototypes of new wallets. Through the processes of intensive give-and-take conversation, designers learn how to think about a design task through someone else's perspective. In short, empathy.

Finally, the discussion turned to the challenge of how to create effective design teams. Rieko cited the example of how Google had studied the most successful internal teams in hopes of figuring out what made these internal research teams so innovative. On first pass, they noticed that some successful teams were comprised of many extroverts, but at the same time, other design teams consisted of many introverts. Some teams had a high quotient of "techies", others had a preponderant number of designers with "soft skills". It was a challenge to figure out the causative characteristics.

Over time, Google came to the conclusion that the most successful teams were those that established an open, receptive environment where people could share ideas freely--without fear of criticism or pushback. The open and receptive nature of such design teams made it safe to take risks and to think boldly.

Finally, Larry mentioned that innovative breakthroughs usually involve elements of surprise and delight. When Larry looks for breakthroughs, he looks for surprise/delight features which function as accurate indicators of innovation.

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