

## **Belief in the Effectiveness of Human Centered Design As a Path to Innovation: An Emergent Framework**

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My thesis addresses the following research question: Why do people have faith in human centered design work practices as a path to innovation independently of its objective efficacy?

My emerging framework is being inducted from a blend of an eighteen-month ethnography, descriptive writings on human centered design, and pertinent behavioral science theory - specifically social psychological theory. Although this framework is tentative, I believe it broadly captures the way in which people come to believe in a particular set of work practices that evokes basic emotional, cognitive, and behavioral reactions. At least for now, I have identified four psychological mechanisms that create faith in human centered design work practices as a path to innovation. These mechanisms, I propose, are supported by four work practices that make up the human centered design process: human observation, collective brainstorming, rough and rapid prototyping, and active storytelling. My thesis aims to describe a process explaining how organizations employ human centered design work practices, to explore the relationship between these work practices and the psychological mechanisms they trigger and ultimately, to describe the power of this impact on individual and organizational beliefs in human centered design to spark innovation independently of objective impact on innovation.

Increasingly, industry experts consider the human centered design methodology to be changing the way companies innovate. There is a trend towards hiring human centered design consultants over traditional management advisors such as McKinsey, Boston Consulting, and Bain to advise on innovation practices (Nussbaum 2004). In contrast to management consultants who emphasize the importance of innovation for corporate profits and growth, design consulting firms actively engage clients in human centered design work practices. In an interview, a client of these services commented,

“You go to McKinsey if you are interested in tapping into a body of knowledge, bench marking oneself to others in industry and receiving 20 years of hands on experience. You solicit Jump Associates or IDEO if you are doing something new that can’t necessarily benefit from comparison to other companies. Also, if you are interested in something that ‘sings and speaks to people.’ McKinsey can generate logical arguments but they can’t make the ideas come alive.”

Rather than spending time creating power point decks for corporate strategy plans, senior vice presidents, product developers, and project managers are partnering with design teams to learn through a hands-on approach using human centered design work practices as a means for innovating and strategically influencing their business over time. Often before the objective efficacy of human centered work practices within an organization are understood, clients profess faith in the process. Positions such as Vice President of Strategic Innovation are being created and individuals filling these positions are being told to “work your magic inside,” referring to integrating human centered design work practices into his organization. BusinessWeek’s manifesto on innovation recently declared, “...making innovation work is the single most important business challenge of our era” (Nussbaum, 2006a: 3). The manifesto recommends using the human centered design methodology to meet this most important business challenge.

What drives the faith in human centered design methodology described above? This far, my conceptual framework suggests that people’s faith in the process is motivated by four psychological mechanisms that are triggered by the content and delivery of the work practices. The work practices trigger the psychological mechanisms to varying degrees, leading people to have faith in a set of work practices before realizing objective measurable success.

Based on existing empirical and theoretical research, I propose the four psychological mechanisms are at work: (1) self-efficacy beliefs, (2) commitment and consistency beliefs, (3) time shifting, and (4) curiosity seeking. People have faith in the human centered design methodology when they gain confidence in their ability through implementation of the methodology, consistently identify and behave as practitioners of human centered design, anticipate and remember experiences with the human centered design process as positive, and seek and satisfy their curiosity through the process of human centered design. Below are brief descriptions of each mechanism.

*Self-Efficacy Beliefs.* Numerous studies have documented the existence of self-efficacy beliefs. Self-efficacy beliefs are the expectations that people have about their ability to accomplish certain tasks (Fiske & Taylor, 1991: 191). When an individual understands a task and believes he can achieve a possible outcome, his perceived sense of control will promote goal-directed behavior. Individuals put forth effort to maintain and restore control in situations (Bandura, 1986) and increase certainty of the future.

*Commitment and Consistency Beliefs.* Second, people strive for consistency between their thoughts and actions. Individuals change beliefs to align with their action to avoid the tension created by misalignment of belief and action (Festinger, 1957). Self justification processes describe the ways in which individuals try to rationalize their previous behavior or defend themselves psychologically against any

perceived wrong doing (Aronson, 1976; Festinger, 1957). Self-justification processes support the tendency for individuals to escalate their commitment to an action beyond reasonable thought (Staw, 1981).

*Time shifting.* Third, time shifting is the hedonic focus of attention towards the past or the future. Empirical research finds that when an individual looks at the past, he or she will selectively search, recall, and alter interpretations of past events so that the events are remembered as more positive (Greenwald, 1980; Taylor & Crocker, 1981; Mitchell & Thompson, 1994; Taylor & Fiske, 1991). And when an individual focuses on the future, he or she will likely anticipate the event as more favorable and positive than the present (Mitchell & Thompson, 1994; Loewenstein & Linville, 1986).

*Curiosity Seeking.* Lastly curiosity is a form of cognitively induced deprivation that arises when one perceives a gap in knowledge or understanding. Curiosity arises when “one’s informational reference point in a particular domain becomes elevated above one’s current level of knowledge” resulting in a desire to close this information gap (Loewenstein, 1994: 87). Individuals seek experiences that allow them to identify information gaps and then fill the gaps with information that most completely closes the gap.

In my rough working framework, I propose that human centered design work practices raises self-efficacy (“I can do this”), increases commitment and consistency (“I will do this”), increases optimism (“I know this will be good in the future as it was in the past even if the present is bad”), and increases curiosity (“I didn’t expect that”). As I ground my developing theory in evidence I’ve collected from my eighteen-month ethnography, I aim to explore how and to what extent the psychological mechanisms are supported by four work practices of the human centered design methodology.

The framework suggests that these work practices support the four psychological mechanisms to varying degrees. Some appear to have a stronger effect on participant belief in the effectiveness of human centered design; however the extent to which I can understand how much effect they have is limited as no single case study can show this differential variance. Through the development of my thesis, I aim to build a working framework to set the stage for working hypothesis that isolate each work practice and their psychological effects independent of each other. In this emerging framework, it is the combination of work practices that trigger the psychological mechanisms leading to belief in the human centered design methodology as a path to innovation.

In order to create a clear conceptual framework, I have organized the work practices and mechanisms as distinct from each other, although in practice, the distinction is not as clear.<sup>1</sup> The work

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<sup>1</sup> Although, it is analytically useful to create distinct categorizations of work practices, as with all categories, the categories may not be empirically distinct. For instance, an individual may observe an end user testing one of his or her prototypes, making improvements to the prototype according to the user’s reaction, however, this framework categorizes human observation and prototyping

practices include (A) human observation, (B) quick & rough prototyping, (C) collective brainstorming, and (D) active storytelling.

*Human Observation.* Human observation is the act of watching humans in their day-to-day context to develop an actionable point of view that encapsulates latent human needs. Human observation includes taking photographs, recording interviews, collecting artifacts from their environment in order to create empathy for people the design is intended.

*Collective Brainstorming.* Collective brainstorming is the act of generating ideas in a large group context with the goal of generating both a high quantity and quality of ideas. Participants are encouraged not to criticize, to improve upon others ideas, and to say all ideas that come to mind (Osborn, 1957).

*Quick & Rough Prototyping.* Quick and rough prototyping is the act of making physical or virtual manifestations of concepts to test their viability and communicate ideas to others. Most prototyping activity occurs quickly and embodies rough approximations of the form and function of an idea.

*Active Storytelling.* Active storytelling is the social act of collecting stories from people in context and telling stories about work practices to communicate an innovation process to colleagues and stakeholders. Active storytelling is supported through both verbal accounts and physical artifacts. Active storytelling is unique from the other three work practices as active storytelling pervades all three. The first three work practices, human observation, collective brainstorming, and rough and rapid prototyping are more easily distinguished from each other as relatively independent work practices. Active storytelling is woven throughout the first three practices described and used to communicate ideas within and about each practice. Despite this integration of work practices, in this framework, it remains conceptually useful to distinguish between active storytelling and the other three work practices.

## **Research Setting**

My emerging framework is grounded and guided by an eighteen month long, qualitative study that I conducted in a large high technology firm that I will call Tech Co. Tech Co.'s product development efforts are multi-national, including development teams in the U.S., Asia, and Europe. The firm's products are sold throughout the developed world, in over one hundred and twenty countries, to a customer base of thirty thousand customers. Tech Co.'s products are notoriously difficult to use and time-consuming even for the most experienced users. Within the firm and within the industry at large, the firm has a reputation

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independently. By categorizing human observation and prototyping work practices separately, this framework can tease out how the psychological mechanisms are triggered.

for devoting little serious attention to users. This lack of attention to users does not differentiate itself from its competitors who also do not devote serious attention to its users.

My study focuses on a group within the organization that I will call the Green Team. The Green Team has been charged with “infusing” the human centered design methodology into the organizational culture to make the firm’s products and services easier for customers to use. The Green Team’s charter is to:

“accelerate the adoption and impact of User Centered Design processes for innovation and the development of design solutions throughout all areas of the organization as well as with the organization’s partners and customers.”

The Green Team’s vision is to transform the organization through sharing knowledge of the human centered design methodology.

For the first three months, I observed the members of the corporate strategy team researching and preparing for the development of the Green Team. The corporate strategy team met with industry and academic experts on cultures of innovation to understand how they could best create an organizational culture focused on innovation. A design consultancy firm specializing in human centered design methodology taught a six member team through active hands-on coaching with innovation as the expected outcome, a process I call participant innovation. All but one member of the team was learning about the human centered design methodology for the first time.

After this initial three month training and trial period, the board officially approved the creation of a team to “spark innovation” through use of the human centered design methodology. In January 2005, the corporate strategy team officially formed the Green Team. At this time, the Green Team was given an office space distinct from the corporate strategy team and a total of 35 billets for new hires. Now independent from the corporate strategy from which it was spun off, the Green Team hired new members to build their team and solicited projects from internal clients based on their trademark methodology for innovation, human centered design.

The remaining fifteen months of my study involved observing the Green Team 1) building its team from six to thirty-four members and 2) coaching internal teams through the human centered design methodology to drive innovation throughout the 30,000-person organization. At the end of its first year, the Green Team was composed of two co-directors, ten project leads, nine designers, four developers, five user researchers, three knowledge management experts, and one team assistant. The team members were distributed in two locations, one local and one international.