

Development of a Design Competence Model for Learners of Human-Centered Design

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Abstract

Learning a new competence and attempting to perform it within an organization not only takes time, but it is heavily influenced by the real-world context of day-to-day work culture and individual perceptions. The little-understood world of learning Human-Centered Design (HCD) within an organization is studied over one year inside of a group of healthcare organizations through a training and mentoring program called the "Innovation Catalyst Program."

Deep insights and personal narratives are gathered by studying learners and their coaches in real-time observations and conversations. A dynamic story unfolds as those who are learning creative approaches for organizational innovation are coached by those with many years of experience on the topic. These same participants provide feedback on the frameworks generated.

The result of this Longitudinal Grounded Theory field study is a new actionable model for understanding experiences and approaches to learning HCD within the context of an organization, a novel approach to assessing development, and ultimately, a way to empower individuals with the mindsets and skillsets of HCD for real-world challenges.

Keywords: human-centered design, capability development, innovation, design thinking, healthcare, Design Competence

Literature Review

Research has focused on how design thinking, or Human-Centered Design, can build innovation capability in an organization (Carlgren, 2014), but little has focused on the capabilities and experiences from an individual learner's perspective within an organizational setting (Seidel and Fixson, 2014). Studies of students have explored how novice multi-disciplinary teams learn and successfully practice HCD in an academic setting (Seidel and Fixson, 2014) and how experts practice design in consulting settings (Haragon 2012) but studying this phenomenon of novice HCD learners in organizational settings, particularly within healthcare, is a gap in the literature. It is argued that it is of value to explore that through a longitudinal study approach to follow the development of this phenomenon over time.

The developmental nature of a longitudinal study was deemed to be the best fit for examining that learning journey, as it is a phenomenon that takes time to observe (Pettigrew, 1990). Application of longitudinal study approach in this context is relatively rare, with an example emerging very recently (Amabile and Pratt, 2016). The researchers adopted an online diary study to expose the day-to-day experiences of individuals working inside of organizations to

apply their creativity toward organizational innovation. This study of individuals learning HCD for creativity and innovation builds further on the researcher's work to demonstrate the context of the occurrences and change in events over time (Lincoln and Guba, 1985; Ponterotto, 2006; Cresswell and Miller, 2000; Greetz, 1994).

The aim of this research is to identify and begin to codify the enabling conditions for individuals to learn and apply HCD within an organization that are not commonplace in design (Seidel and Fixson, 2014; Amabile and Pratt, 2016). Those approaches and conditions will be further considered through the application of frameworks created in the author's prior research. The desired outcome is to provide a repeatable process and practice-based framework for others who strive to bring HCD into their organization and for the organizational leaders who wish to support its use.

Research Methods

The study was designed around the Center for Care Innovation program called the "Innovation Catalyst Program". This provided a unique opportunity to study a group of learners and coaches during their journey on the program within this large healthcare organization. This research study is not an evaluation of the Innovation Catalyst Program, but is focused on the experiences of the individuals, both learners and coaches, who are a part of the program.

The Innovation Catalyst Program

The Innovation Catalyst Program, hereafter called the "Program" or the "Catalyst Program," began in 2014 and was in the third year of operation during the time of the study. At the time of the study the program was run jointly by Kaiser Permanente, a not-for-profit healthplan, and the Center for Care Innovations, a grant-making and collaborative network of providers specifically serving economically disadvantaged populations. The Catalyst Program is described as "a network of local innovation champions trained to use human-centered design and design thinking to add value to existing projects and initiatives in health care organizations" (www.wearecatalysts.org/about). The primary components of the Program are described as skill development, principles and methods, online learning community, coaching support and events and workshops (per the CCI Catalyst website).

The Program was selected as the focus of the study because it is regarded as an exemplary internal capability program within the design field as judged by the Design Management Institute (DMI website: www.dmi.org/?whatism) and an international group of experts. As such, judgement sampling was used to select the program, as it is in line with the philosophy of this research and enables a focus on learning from experts and exploration of what is working and how.

The participants – learners and coaches

The learners were required to apply for the program. Their selection included the prerequisite that they had the support of their direct manager to spend 20% of their time toward the program over the 12 months of the program. It was also requested that the learners apply in conjunction with 1-2 other individuals they worked with regularly, and finally that they have an existing

project effort toward which they could apply their learnings. Applicants to the Catalyst Program were chosen by the program administrators of the Center for Care Innovation and Kaiser Permanente. In total there were 48 learners in the program for the calendar-year study, and each team was provided a coach who was considered an expert in the methods of design. All participants in the Catalyst Program, both learners and coaches, were approached to consider joining this research study for the 12-month learning journey, and all provided their consent.

Per the program website, (<http://www.careinnovations.org/programs-grants/catalyst>), the selected applicants were provided with learning opportunities, learning materials, a coach, and educational materials to help them to build their innovation capabilities through the use of “human-centered design methods and mindsets.” The goals stated were to help “drive different ways of working in their organizations” by aiding each of them to become an “innovator” and “change agent” through the use of human-centered design within their organization.

“They [the coaches] taught us that there is a teachable, learnable skillset for innovation, but also a level of skill and expertise that we can all aspire to.” – George Su, MD, Associate Professor of Medicine, San Francisco General Hospital, in an Innovation Catalyst video interview

Table 1: Participating Organizations

Organization	Number of Selected Participants
Kaiser Baldwin Park Medical Center	3
Kaiser Garfield Innovation Center	2
Kaiser South Bay Clinic	2
Kaiser Coalition of Unions	3
Kaiser Greater Southern Alameda Area Medical Center	2
Kaiser Los Angeles Medical Center	3
Oregon Primary Care Association	2
Rinehart Clinic	2
Yakima Valley Farm Workers Clinic	2
Petaluma Health Center	2
Lifelong Medical Care	2
Alameda Health System	3
San Francisco Department of Public Health	2
San Jose Foothill Family Community Clinic	2

Asian American for Community Involvement	2
Olive View UCLA Medical Center	2
Riverside County Health System	3
Planned Parenthood of Orange County	2
Planned Parenthood of San Bernadino County	2
San Diego La Maestra Family Clinic	2
Central City Concern Clinic	2

The participating organizations represented healthcare community-based organizations serving a range of demographic groups. Each Innovation Catalyst participant was employed by one of these organizations.

Research Methods

A grounded study approach (Glaser, 1992; Strauss, A. and Corbin, J., 1994) was used for this longitudinal study. The research study then tracked the coaches and the Catalyst learners over a 12-month period, as was deemed the best approach to observe changes in the learner over time (Lincoln and Guba, 1985; Ponterotto, 2006; Cresswell and Miller, 2000; Greetz, 1994). During the study, the data was collected through a variety of sources to allow for better triangulation and to minimize researcher bias (Cresswell and Miller, 2000). The data collection included observations, ethnography, artefact analysis and user input and analyzed using Thematic Analysis (Braun and Clarke, 2006). An overview of how the data were collected over the 12-month period is given below in Table 2.

Table 2: Summary of Learners' Group Collaboration/Education Sessions

Session	Hours & Data Capture Method	Venue	Date	Purpose	Attendee dynamics
In Person Kick-Off and Training Session	20 hours of observations, artefact gathering, and field notes	In Person	October 2015	Develop Catalyst network and provide exposure to basic skills, resources, and program expectations	Coaches and outside expert conducting training and learners listening and practicing techniques
Learning Exchange	1 hr live listening; meeting recorded & transcribed	Virtual video	December 2015	Connect learners to share with and guide each other	Learners sharing progress, successes and posing questions
Learning Exchange	1 hr live listening; meeting recorded & transcribed	Virtual video	January 2016	Connect learners to share with and guide each other	Learners talking together, coaches providing structure for session
Learning Exchange	1 hr live listening; meeting recorded & transcribed	Virtual video	February 2016	Connect learners to share with and guide each other	Learners talking together, coaches providing structure for session
In Person Innovation Fair	12 hours of observations, artefact gathering, and field notes	In Person	March 2016	Show project progress to other participants and learn from each other	Active sharing & exchanging advice in morning, followed by facilitated learning sessions by coaches
Education: Measuring the impact of innovation	1 hr live listening; meeting recorded & transcribed	Virtual video	April 2016	Teach methods and approaches to measuring innovation	Coaching experts teaching learners
Learning	1 hr live listening;	Virtual	May	Connect learners to share with and	Learners talking together, coaches

Exchange	meeting recorded & transcribed	video	2016	guide each other	providing structure for session
Education: Prototype and Experiment	1 hr live listening; meeting recorded & transcribed	Virtual video	June 2016	Teach approaches and purpose of prototyping and rapid experimentation	Active sharing & exchanging advice in morning, followed by facilitated learning sessions by coaches
Learning Exchange	1 hr live listening; meeting recorded & transcribed	Virtual video	July 2016	Connect learners to share with and guide each other	Learners talking together, coaches providing structure for session
Education: Conducting Pilots	1 hr live listening; meeting recorded & transcribed	Virtual video	August 2016	Teach approaches to piloting solutions	Active sharing & exchanging advice in morning, followed by facilitated learning sessions by coaches
Coaching: Catalyst team (1-3 people) and Coach	5 hrs live listening; meeting recorded & transcribed	Virtual video and phone calls	Oct 2015 through Aug 2016	Provide customized coaching to Catalyst learners	Variety of 1:1 coaching calls between individual coaches and their assigned site team
Coaches Peer Group	15 hours recorded and transcribed	Virtual video	Oct 2015 through Aug 2016	Capture program and provide peer to peer support to coaches	Connect coaches to reflect on interactions with their teams and provide advice and counsel to one another

There were a variety of artefacts that were reviewed. A printed book, called the “Innovators Guidebook,” which contained the methods, context, and rationale, was provided to the learners at the first Kick-Off session. Method cards were also provided, which served as a quick reference summary deck of the guidebook. Each card contained information on one method, and the cards were bound together with a ring, allowing the cards to be removed or re-sorted at will.

And lastly, a website was available containing the same information on the design methods for innovation, the mindsets that were taught during the kick-off meeting and additional context for the learner. The website had a posting functionality that allowed the learners and coaches to have discussions together and post tools and documents to share amongst the cohort.

Discussion

In the following sections the experiential data collected are reported and explained. Fifteen different frameworks were presented back to the learners and the coaches, as well as to academics and thought leaders in human-centered design. The purpose was to gather their feedback on what ideas they felt would be useful in their practice, what ideas seemed to reflect and provide structure to what they had experienced, and how to make the frameworks better. Their feedback was incorporated into the final models provided; one developing model, the focus of this research paper, revealed competency stages in learning HCD.

Insights into the learner’s journey

The analysis sought to identify experiences and enablers of the learner’s journey as it applies to learners’ perceived and observed experiences over time. The assessment begins to fill in the gap between the new learners (Catalysts) and those of experts (the coaches), who have had many years of experience. The desired result is to develop tools and models to better enable new HCD learners and teachers.

Organizational culture as context

Despite an affinity for people and the work, approximately 30% of the Catalysts expressed experiencing challenges with their work colleagues’ morale, as well as incurring “unhealthy” cultural challenges. They believed that these led to a lack of desire to engage in the work and a resistance to change. The Catalysts struggled with knowing how to both learn and practice the methods, as well as navigate cultural challenges within their organization at the same time. For some, it caused their project work and their ability to practice the methods to stall for a period of a few months.

"We did a journey map of process, we had staff going out to capture perspectives and posting ideas and notes during clinic real time onto idea boards. We did clustering during staff meeting real time and idea boards in clinic. What we discovered is that we need help with culture issues because idea boards revealed bad culture issues based on what was posted. It shocked us actually. We've been stuck in this place for a while now." – Catalyst learner, Improvement Consultant

Other Catalysts discovered that the methods themselves could help address some of the cultural issues they were facing. The first statement captures the methods they used to bring people together and the second was a reflective moment one of the Catalysts had about why it was so important for users to be involved and how it was different from how she'd worked in the past.

"We needed help to shift the culture of the clinic. We've been using lots of brainstorming, process mapping and journey mapping. Doing this has helped to address issues because we are doing it in face-to-face joint sessions. People weren't wondering what we were doing anymore because they were a part of it."
-Catalyst learner, Clinic Manager

"Just having a meeting where you get a few people like the users and other clinicians to actually look at it and reflect on it just does so much for morale. We've all been on the receiving end of things that are just missing the mark and not what we need. ...now what I realize is that I need to hear from people. They may tell me about what can work and, yes, we might get a whole other slew of ideas and sometimes that's hard to take. But you will definitely end up getting support for the work. I think a key goal of all this work is to get people to contribute to their own system in a different way, and that alone will be so amazingly useful." – Catalyst learner, Consultant

Right sizing the learning approach

Being given a high priority and highly visible challenge to work on was common for the Catalyst learners. Coaches spent significant time trying to re-scope and break the project into smaller components. They struggled with which was more important for the Catalysts, addressing the challenge or learning the skills. The coaches discussed at length the wish that Catalysts would join the program with a smaller and "less visible" organizational project that they could use to learn and try to apply the HCD skills toward.

"I took it to heart when you gave me the advice at Kick-Off that the people who are most successful apply this in many areas of life, not just their innovation project. I tried it with my kids first. We brainstormed about our vacation. It was clunky but they were totally into it. Later that month I ran a brainstorm at my team meeting and I felt better about it by then. It was good to have one under my belt at home for sure." –Innovation Catalyst learner talking to their Coach

“If we were to look at some of those teams who are really struggling and we were to see that they need to really understand, look at what holds people back from change and what it really means to be a change agent. You know, sort of that cultural context. That may be more of what some of those teams need than knowing how to design things and run out to try to get people to try them. Because they don’t even understand the context and the culture. So they are trying to be doers, but they are getting stuck in the bigger contextual issues. And they can’t practice the methods enough to learn that design can actually help with those cultural and contextual things. They are stuck in the complicated effort when what they need are small scale ways to learn and practice right now.” - Catalyst Coach

Change in learners over time

The learners began the study struggling to find “safe” places to apply the new tools they had learned in the Innovation Catalyst training program. They sought after their coaches’ advice frequently over situations where they felt “stuck,” believed they could not practice what they had learned because they needed help to engage stakeholders, or couldn’t figure out where to begin on a project that felt “too big” or “too complicated. The coaches would find small ways begin learning and practicing. They would tell the Catalysts that the important element was to apply and practice their newly learned skills as soon and as frequently as they could. The coaches would help guide them on how to do that. By the time the Catalysts attended their In-Person Innovation Fair five months into the program, about half of the participants expressed that they had become more comfortable with the methods through practice and were now beginning to combine the HCD approaches with other methods they had learned during their careers.

“I got in front of some of our leaders and physicians at a meeting and I asked them to draw their experience. They didn’t do it. And I realized that I didn’t have anything in my bag of tricks after that. I was stuck.” – Catalyst learner at 1 month

I’m feeling a lot better about my own skills now. The other day I took what I’d learned (in a different program) about how and why people resist change, and it made me look at field testing my prototypes differently. Then it wasn’t just about the idea, but the chance for people to experience it and have an opinion that was heard. I could weave those things together as I spoke with them and it gave me a whole new approach. I was like, light bulb!” – Catalyst learner at 5 months

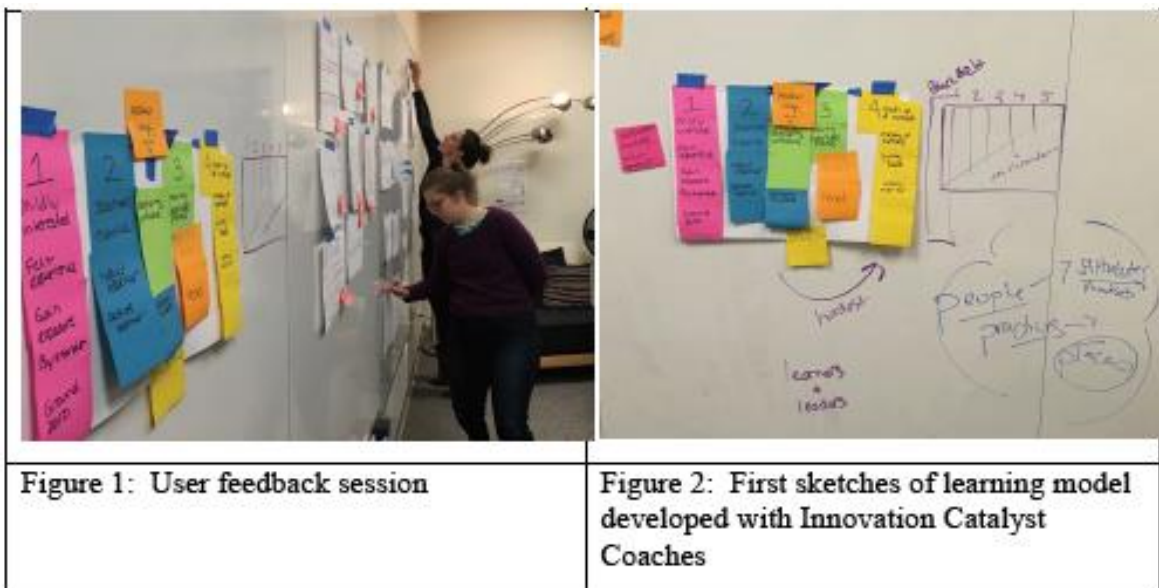
The ideas presented below went through a series of iterations from user feedback sessions. The final results of the sessions are provided.

First round of feedback

The experiences such as those demonstrated above were translated in to insight and then into 15 different draft paper models. They were provided to coaches and Catalysts in a series of co-design sessions. One model that received strong interest was the idea

of breaking down the learning experience into different stages. The first prototype and a few comments from one of the sessions can be seen below.

The ideas presented below went through a series of iterations from user feedback sessions. The final results of the sessions are provided.



Leveraging existing learning models

An emerging model of the learner and the stages they go through has begun to develop. When the user feedback data was all reviewed in total further research was conducted as is common in a Grounded Theory approach. The Dreyfus “Five Stage Model of Adult Skill Acquisition” (Dreyfus, 2003) was selected due to its active stages of learning from novice to expert, or as Dreyfus calls it, mastery. The experiences are synthesized into the five development stages to demonstrate a change over time.

Upon further research, it was discovered that this model was later reviewed by Benner, a researcher and nurse who found parallels between this model and nursing. She theorized that improved practice depended on experience and science, and that skill development was a long developmental process (website: <http://www.nursing-theory.org/theories-and-models/from-novice-to-expert.php>). In Benner’s Novice to Expert model (Brenner, 2003), as in the Dreyfus Skill Building Model (Dreyfus, 2003) that preceded it, the stages of development for learners include:

1. Novice
2. Advanced Beginner
3. Competent
4. Proficient
5. Expert

The Dreyfus and Benner models were further studied and believed to be useful in a HCD learner's context when compared to the insights from the longitudinal study and the feedback from the co-design sessions. The Design Competence Model, which identifies learning stages, was drafted and provided to the Catalysts, Coaches, and 15 other thought leaders and academics in the field of Human-Centered Design.

User feedback on model with Dreyfus and Benner context

Building on the prior user co-design session where a set of four generic stages were presented and refined (see Figure 1 and 2), a model adapted from Dreyfus and Benner's models was placed into a new context for learning HCD. Now referred to as the Design Competence Model, the findings were presented to users and were believed to have usefulness and applicability in the HCD field for learners. When asked for the level of usefulness and applicability 75 percent of the users responded that the findings were highly useful and applicable. The users also believed that there was a stage not captured in the original models. This new stage occurred when an individual was first exposed to design as a relative outsider, not yet actively trying to learn the methods or mindsets. After a few more iterations, that activity was eventually codified into a pre-learning stage called "Contemplation" and added to the developing model.

Applicability of the Dreyfus and Benner models for HCD learners

The development of the model continued and was iterated with the same coaches, Catalysts, thought leaders and academics. The components are captured in the image below.

In the final model, it is noted that the Dreyfus and Benner stages were used with the addition of contemplation, a segmentation of learning into three broad categories of HCD methods of needfinding, brainstorming and prototyping, see Figure 3: Design Competence Model. Additionally, to demonstrate how learners were found to progress at different stages through these three categories of HCD methods, the possibility of varying stages of learners is shown in the second image of the model, Figure 4: Design Competence Model Demonstrating Example of Learner Development.





Expert			
Proficient			
Competent			
Beginner			
Novice			
Contemplation			
	Needfinding	Brainstorming	Prototyping
	The creation of insights and reframing of a problem gained from observation, empathy, and immersion into user needs.	A group process using formal approaches to generate ideas to address the identified need.	Building models and interactions to facilitate the development and selection of concepts.

Figure 3: Design Competen



Expert			
Proficient			
Competent			
Beginner			
Novice			
Contemplation			
	Needfinding	Brainstorming	Prototyping

Fig.  Design Competence Model displaying the potential of differing stages of development by method

Description by stage

The Design Competence Model discussion will continue by further developing each stage of the model in comparison to the models from Dreyfus and Benner. Based on their models, this longitudinal study observes the development of individuals from the level of a novice with no experiential background in HCD to that of an advanced beginner who has experiences to draw from and eventually to what is termed as “competent” in some cases. Expanding this comparison, the coaches in the study would be considered in the final two stages of this skill development, which is proficiency and expert. The coaches are fully comfortable with the methods and have accumulated years of experience and the ability to more easily and skillfully navigate complex situations. Each stage is discussed briefly, along with the stage description from the work of Dreyfus and Brenner. Additionally, the study findings are included with each stage to provide a richer understanding of the learners’ experience as captured in this longitudinal study.

Contemplation

Dreyfus and Benner model: This stage does not exist.

Study findings: This is the point in time when an individual is exposed to HCD, possibly through a conference, internal workshop, educational course, co-worker discussions, or another source. During this time, a person may begin to see the connection between their personal interest, a problem they have to solve, and the possibility of design as an approach to help. If the experience is positive for them, they describe feeling mildly interested to highly interested and have gained enough motivation to be willing to invest a portion of time and money into deepening their exposure. They are often drawn to the idea of learning new approaches to solving problems because they are irritated by situations or conditions in their environment that are “irritating” and not functioning well, in their opinion.

Novice

Dreyfus and Benner model: An example of a novice in a clinical setting is a nursing student. Their behavior in practice settings is very limited and inflexible. Novices have limited ability to predict what might happen in a particular situation.

Study findings: The novice HCD learners were coached to keep making their projects “more manageable” in scope and complexity. It was stated by the coaches that this was because this would give them more time and ability to practice and iterate their technique. Structures that make it easier for people to practice in this way are important, such as easy access to patient advisory councils, or protected time blocks for project work. Positive feedback from others at this point appeared to be important for the learners as well as leadership support to feel progress and to continue the motivation and build the desire to begin to apply learnings into practice at a small scale.

Advanced Beginner

Dreyfus and Benner model: New nursing school graduates are an example of advanced beginners. They have more experiences that enable them to recognize recurrent,

meaningful components of a situation. They have knowledge but not a great deal of in-depth experience.

Study findings: The role of coach is important to guide application of learnings for practical skill development. Confidence develops slowly and occurs with repetition and successful demonstrations of techniques. Continued sponsor or leadership approval for time and resources during this learning stage is key, as learners experience that design methods take longer portions of time as compared to other methods and approaches they may have used in the past. A common language is developing between learners and coaches to enable deeper and more focused coaching and group reflection.

Competent

Dreyfus and Benner model: Learners at this stage recognize patterns and situations more quickly than advanced beginners, but are not as quick and proficient in problem solving and acting as proficient nurses. They can compensate with advanced planning and organizational skills if allowed the time.

Study findings: This stage can be fraught with frustration as the learner is developing competence in their skills but is still likely in the stage of legitimizing design skills to key advocates within their organization. Needfinding and brainstorming approaches are often more frequent in their practice development, but prototyping activities with users were observed as lagging behind and occurring less frequently.

Proficient

Dreyfus and Benner model: Situations for individuals that are at this stage can be viewed as a whole, instead of in separate parts. Proficient nurses, for example, can learn from experience about what events most typically occur. They can then respond quickly to modify plans in response when needed.

Study findings: If the learner reaches this stage they typically have strong internal organizational advocates and have often built a team of people who are attempting to model their design methods and skills. They have reconciled the similarities and differences between design methods and other approaches and can both speak to and advocate for their use when appropriate. They still need coaching at this stage, particularly when the work is complex or high risk.

Expert

Dreyfus and Benner Model: The experts no longer rely on rules to guide actions under given situations. They have an intuitive grasp of the situation and can rely on their deep knowledge and expertise. They also know which problems require their attention and which do not, and they only use analytical tools when they have no experience in an event or when events don't occur as they had expected based on past experiences.

Study findings: Experts in in this stage of HCD design methods have likely created an internal following of people, advocates and team members, who will evangelize the use of design methods with them. They can improvise methods in the moment based on what is needed and can contribute knowledge and approaches to continue to grow the practice.

They have formed a sustainable microclimate around themselves and their partners and often have a thriving network both in and out of their organization. (see “Learning from the Best: Unpacking the Journey of Organizational Design Thinking Leaders” from Zuber and Moody for additional context on experts and Microclimates.)

Conclusion

This study has sought to understand the journey of learning Human-Centered Design skills and to seek approaches to better enable this learning experience within the context of novice learners inside of organizations. The Longitudinal Study has examined individual learning and application of Human-Centered Design in a large, complex organizations over 12 months. Alongside the findings from the researcher’s PhD studies (Zuber and Moody, 2016), this allows the formation of propositions on the end-to-end learning experience and application of HCD within an organizational context. The findings are used to inform the development of the Design Competence Model for individual learners.

The perspective of an individual learning journey is novel and the study has offered a rarely seen view of the learning and application experiences of HCD within an organizational context (Seidel and Fixson, 2012). This has been explored to some extent by interviews with experts as they reflect on their changes in practice over time (Carlgren, 2013; Carlgren, 2014; Carlgren, et al., 2015; Carlgren, et al., 2016; Rauth, 2016; Leidtka and Ogilvie, 2011, Zuber and Moody, 2016). The approach applied here revealed that learning HCD skills may occur in a series of developing stages over time, and that HCD skills are highly influenced by the context in which they are being learned. The Dreyfus Model of Skill Acquisition and the subsequent Brenner Nursing Competency Model have been applied to the organizational HCD learner to create a novel view of HCD learning in stages.

This study has provided a deeper understanding of the personal and environmental factors as this experience takes place within the organization. The approaches discuss the iterative nature of learning, the active process by which it occurs and, the assertion is made that the learner becomes better skilled over time because of the comparative experiences. By adapting Dreyfus and Benner models, the stages of HCD learning take on a more distinct progression and development that did not previously exist in the design literature. It also provides insights into the experiences and needs of the HCD learner to enable leaders to provide better advocacy for the development and application of HCD for organizational innovation.

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Author Biography

Christi Dining Zuber

Christi Zuber RN, MHA, PhDc is internationally recognized for her trail-blazing work in the field of innovation and design. She is a Principal of Innovation and Design at Kaiser Permanente, Founder of Aspen Labs consulting practice, as well as the Co-Founder of the global Design Thinking Exchange network. Zuber has over 20 years of leading teams, observing users, creatively generating ideas and conducting field experiments to develop solutions that work. She founded the successful (and joyful!) Innovation Consultancy which she led for 12 years. Their work has been touted by the likes of the Harvard Business Review, Fast Company, and the New York Times. Christi serves on The Conference Board's Innovation Council as an Executive Board member and is a mentor to healthcare executives in an ASU sponsored fellowship program. In her current PhD work, she's researching the secret sauce for change agents who have been successful in large complex environments and organizations that aren't quite so keen to change. Christi loves to write, research, teach and speak on the topics of design, innovation, creativity and individual empowerment to make a positive difference in the world.

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