

Chapter 2

An Introduction to Design Thinking and an Application to the Challenges of Frail, Older Adults



Tony Gallanis

Abstract Design thinking is a valuable, iterative process to utilize when building an innovation. Rather than starting from a singular novel technology in search of a problem, the design thinking approach begins with assessing the environment, users, and stakeholders, attempting to identify alternative strategies and solutions. This process generally leads to a more holistic and sustainable intervention, improving outcomes and adoption. This chapter provides a primer to design thinking, as well as an introductory toolkit to begin applying the approach to your innovations.

Keywords Design thinking · Innovation · Desirability · Feasibility · Empathy · Ideation

Learning Objectives: In this chapter, we will explore the process of design thinking as a discipline. We will then explore its integration within healthcare. By the end of the chapter, a reader shall be able to:

- Define the concept of design thinking
- Examine the intersection between design thinking and innovation
- Identify the role of empathy in the design thinking process
- List the tools that are useful to embed design thinking in global health projects
- Apply design thinking to tackle a global health challenge.

2.1 Design Thinking Introduction

Innovations are seen to be bold, new, creative solutions to problems. Often, these innovative solutions require an explicit understanding of the problem that needs to be solved from the user’s perspective. This approach to drive innovation—coined Design Thinking—requires discipline and is often different than the way most people conduct traditional problem-solving. Traditionally, innovation projects result from a team gathering together, creating specifications for the innovation, and fulfilling

T. Gallanis (✉)
MIT Critical Data, 77 Massachusetts, Avenue E25-505, Cambridge, MA 02139, USA
e-mail: gallanistg@gmail.com

the specifications within the allocated budget. Design thinking differs by allowing the specifications to be driven by the user's needs and the nature of the problem. Design thinking has been the linchpin of the tech and startup ecosystem in the recent decade. Still, the problem-first nature of design thinking is applicable beyond the startup world and has the potential to provide the global health workforce with better tools to work through the most challenging of global health dilemmas. Design thinking digs quickly to the root cause of a problem and provides tools and resources for teams to then create powerful solutions. In the following chapter, we will address how design thinking can match the unmet need for user-driven innovation in global health and how global health practitioners can embed this disciplined approach to support global health initiatives.

2.1.1 Design Thinking Workshop for Global Health

Addressing air pollution, noncommunicable diseases, potential influenza pandemics, high threat pathogens, ageing society, and weak healthcare systems are among some of the several profound challenges in global health (WHO 2019a). Aging societies pose numerous challenges to global health. Around the world, populations are aging at a faster rate than before. By 2050, the over 60 age demographic will more than double, reaching 2 billion people. With the rising population of older adults, geriatric syndromes will increase in prevalence causing strain on the healthcare system to treat more dementia, hearing loss, cataracts, back and neck pain, and diabetes (WHO 2018). Already, dementia among older adults is an \$800 billion challenge that causes strain on healthcare systems, caregivers, and those affected by the illness (WHO 2019b). Aging societies need bold solutions to address the health needs of older adults. Each of these challenges is daunting due to the complexity of the problem and scope of the intervention required to effect positive change. Challenges that are vast and imposing are often those best poised to benefit from design thinking. This chapter is based on the lessons learned using design thinking during a Global Health Datathon organized at the Khon Kaen University in Thailand. The Datathon worked through one of the many challenges in global health—aging societies—and applied design thinking to bring about solutions for three different users who vary in frailty severity.

For participants of the Khon Kaen University (KKU) Datathon workshop that inspired this chapter, the design focus was on understanding problems faced by frail older adults. Frailty refers to the clinically recognizable state of an older adult who is vulnerable for severe complications or injuries. The frailty phenotype, as put forth by Fried et al., is commonly denoted as a combination of three of the five following traits: physical weakness, slow walking, low physical activity, low energy, or weight loss (WHO 2016). The challenges experienced by frail adults are many since frail population are at elevated risk for falls, hospitalizations, and mortality (Ensrud et al. 2007).

2.1.2 Overview of the Workshop

The workshop was composed of two sessions. During the first, participants learned vital tools and methods of design thinking. Design methods are frameworks and tools used to shape one's workflow and mindset through the course of the design thinking process (Jones 1992). The second session focused on the application of those tools within the context of the challenge of ageing. The total length of the KKU Datathon workshop was 3 hours with a short break in the middle. Participants ranged in age from university students to older executives. The backgrounds of participants included data scientists, clinicians, researchers, public health workers, nurses, and administrators. There were approximately 25 participants in attendance. A PowerPoint presentation was used to guide participants through the design thinking workshop. Markers, easel-pads, and sticky notes were provided for participants to work through the applied portion of the workshop. Like the workshop, this chapter first will focus on design methods and then apply them to the design challenge: the experience of frail, older adults.

2.2 Part I: Introduction to Design Thinking

2.2.1 General Overview

Design thinking is a process with mindsets to navigate uncertainty and arrive at insightful innovations (IDEO 2019). Design thinking mindsets are ways for the designer, as the practitioner of design thinking, to approach the problem and the various stages of design thinking. Mindsets guide the designer on how to embrace the problem and where to look for inspirations and solutions.

Often, people assume design thinking to be the holy grail of innovation. Simply employ design thinking and innovations will spontaneously spring forth, but this is not the case (Nussbaum 2011). As a disciple of design thinking, it is important to first to indulge the mindsets that unleash one's creative confidence and second to ensure the space and support to employ innovative work through design thinking. Simply following the design thinking process will not bring about the intended innovations. One must buy into the processes with certain thoughtfulness to build one's creative confidence (Kelley et al. 2019). Secondly, support systems, buy-in from leadership, diversity of skillsets, space for working, and time to create are all key ingredients in fostering the right ecosystem for design thinking (Waters 2011).

2.2.2 Defining Innovation

Innovation in design thinking is the intersection of desirability, feasibility, and viability. Desirability refers to the user's want for the product or offering at hand. Feasibility refers to the ability of the team to create the product. Viability refers to the sustainability of the solution. The intersection of desirability, feasibility, and viability is innovation (IDEO 2019) (Fig. 2.1).

One caveat in the definition of innovation employed by designers is the expressed prioritization of desirability over feasibility and viability. In global health, one could constrain the innovation to whether it was feasible given the resources on hand or whether it would be viable after implementation. When designers prioritize desirability chiefly among the three, designers are hinting that it may be more beneficial to build an innovation that addresses a person's needs rather than an innovation that can be allocated funding or be built with available resources. One of the fatal flaws of innovation teams is the creation of things that do not serve real problems. This fatal flaw has vast repercussions in global health. Occasionally, governing bodies, non-profit organizations, or ministries of health may be keen on implementing a solution, but the solution itself may not address a real need for the intended user. This problem leads to a solution that is not desired by the target population.

During the West African Ebola outbreak in 2014 as well as the recent 2019 Congo Ebola outbreak, occasionally all-white personal protective equipment (PPE) was used by frontline health workers when treating Ebola patients. All-white PPE conjured notions of ghosts and death, notions that hindered the ability of frontline health workers to treat patients (UNICEF 2019). Frontline health workers who donned the

Fig. 2.1 Innovation intersection



all-white PPE would instill fear in their patients during treatment. Patients would fear the frontline health workers who traveled into towns to extract sickly patients or avoid treatment altogether. In this scenario, the actions of the frontline health workers were hindered because patients did not desire the treatment provided. The nature of the Ebola epidemic was perceived to be one of patients not receiving medical care when the true nature of the problem was patients not finding comfort and security in the treatment available. A proposed solution to the challenge of comfort and security of the patient during the treatment process was the PPE Portrait Project. The PPE Portrait Project taped a portrait of the frontline health worker's face to the outside of the all-white PPE. With the portrait adorned on the front of the PPE, patients could see the humanity of the person behind the ghostly white suit. This humanity connected the patient and the frontline health worker to lessen fears of treatment. The PPE Portrait Project taped a portrait of the worker to the outside of the PPE, enabling patients to connect with the frontline health workers and alleviate fears (Heffernan 2019; Crossan 2015).

2.2.3 *Developing Empathy*

Empathy is critical in the design thinking process, especially when a designer places an explicit emphasis on the desirability of an innovation. In design thinking, empathy is the process of uncovering the desires and aspirations of the users for the intended product or service. Without researching and learning what a user truly struggles accomplishing, a designer will be unable to know how to create a desirable innovation.

There are many ways to conduct empathy research and the methods parallel other qualitative research methods including those of ethnographic research and primary market research (Reeves et al. 2008). The key to empathy research is to engage a user in some way and then to probe deeper into the user's perspective. One strategy employed by a top design consulting firm, IDEO, is to conduct The Five Whys during an interview (Design Kit 2019a). Through successively asking the user why they acted in a certain way, the interviewer is able to peel away at the internal motivations and underpinnings behind a user's actions. In the KKU Datathon workshop, participants were asked to pair up and conduct empathy research in the form of 1 on 1 interviews. For three minutes one partner would interview the other person to uncover why their partner decided to attend the KKU Datathon workshop on design thinking and global health. A profound empathy interview that occurred during a different Datathon workshop went as follows:

Participant Hi there, **why** are you here at this workshop on design thinking and global health?

Interviewee I recently switched jobs from finance to healthcare and am hoping to make an impact.

Participant **Why** did you switch jobs to healthcare?

- Interviewee My previous job became dull over time and I felt disconnected to people.
- Participant **Why** do you desire to be connected to people?
- Interviewee There's something special about getting to know people's health challenges and finding ways to help.
- Participant **Why** is it so special?
- Interviewee It's not every day that someone opens up to you about their struggles, so you have to make the most of it when they do.
- Participant **Why** do you have to make the most of it?
- Interviewee Well, someone helped me through a hard time and, I guess, I just want to do the same.

Without conducting an empathy interview, there would have been no way that the participant would have known that her interviewee had such a profound interaction with the healthcare system at a young age as to warrant a mid-life career change. It may feel strange to probe so deeply into the user's nuances and complexities, but it is the duty of the designer to engage the user genuinely and to learn raw insights that will later evolve into impactful innovations.

2.2.4 The Data Behind Design Thinking

Empathy interviews are chances to create data points from real users. The data produced during the empathy stage could be from interviews, phone calls, user journals, shadowing the user, photo journals, or any other mean of learning the user's perspective. From these insights, a designer would likely categorize the findings, seek patterns in the data, and discern insights from the observations. A simple empathy categorization method is an empathy map (Stanford D School 2010) (Fig. 2.2).

The goal of an empathy map is to distill the needs of a user in a routine and systematic way. An empathy map breaks down an empathy interview into four key groupings: the user's thoughts and beliefs, feelings and emotions, actions and behaviors, or quotes and defining words. If a designer repeats this process multiple times with different users, patterns emerge among the collective body of interviewees giving rise to a growing need.

When finding patterns in the data, it is important to note than not all users are the same. People have vastly different needs and lifestyles leading to a dichotomy in the design community known as extremes and mainstreams (Design Kit 2019b). Extreme users are the minority who inhabit disparate opinions towards the project at hand. Mainstream users are the majority who carry the popular opinion towards the project at hand. Empathy is useful to uncover the varying needs and desires for different users, especially extreme users. In global health, an appreciation for the vastly differing needs of users enables more tailored innovations. In the Ebola case previously discussed, the fear of ghostly health workers wearing PPE may have been the opinion held by extreme users, but these extreme users may also have been the

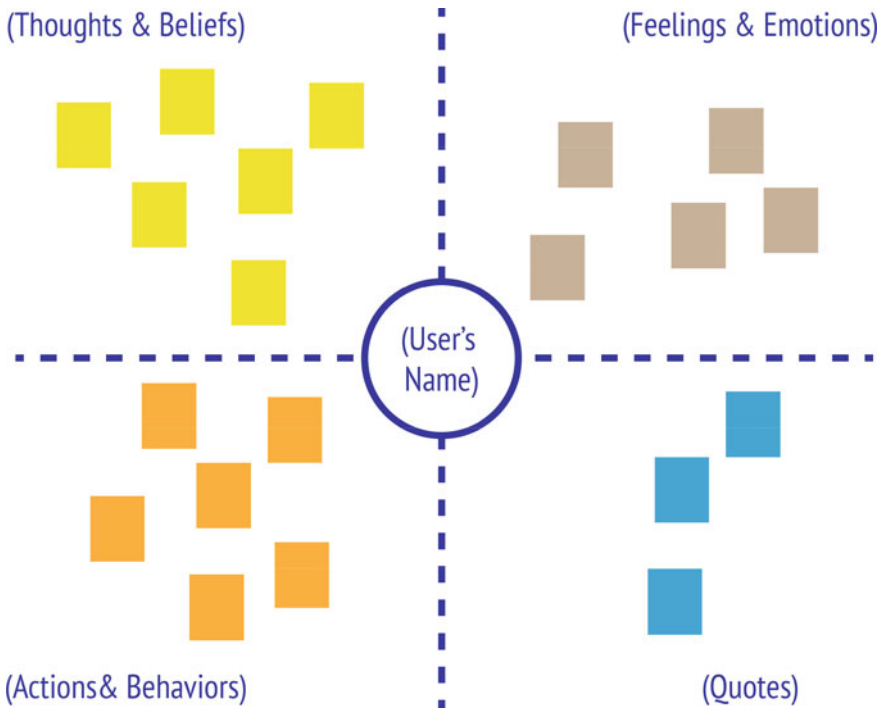


Fig. 2.2 Empathy map. Colored rectangles represent sticky notes

group disproportionately transmitting the disease. In this case, a tailored innovation for the extreme users would be most impactful.

2.2.5 *Problem Definition and Problem Reframing*

Following empathy, participants were introduced to problem definition and problem reframing. In design thinking communities, the problem definition and problem reframe are notoriously challenging. Defining a problem involves brutal honesty with oneself regarding the purpose of the design thinking project and the challenges facing the user. Sometimes designers believe they know the challenges facing the user without ever consulting the user through empathy. This leads to blind designing where products are built that completely miss the mark and do not address the user's true need. To avoid this horrendous mistake, always define the problem facing the user honestly.

Reframing the problem is equally challenging. To reframe the problem, one needs to know the systems that generate the problem and have the perspective to identify the root cause of the challenge.

Example: Creating a Music Ecosystem

An example of a problem definition and problem reframe is Apple's entrance into the music industry. When Apple decided to enter the music industry, the logical next step in product development should have been to create a device that would compete with the Sony Walkman. This device, by all means, would have built upon Apple's expertise in the computer industry and have been a smaller, more portable Macintosh.

Apple did create the iPod, which performed much like a smaller computer with the ability to play MP3 songs; however, during the process of creating the iPod, Apple reframed the problem users faced with the music industry. During the time when Apple was creating the iPod, the music industry was having challenges with illegal music piracy (Silverthorne 2004). Consumers could freely download music from illegal websites and store these songs on devices for listening. Downloading music was not the issue for consumers; finding quality music and sharing this music with friends was an issue. During the process of creating the iPod, Apple also created iTunes, a platform that would become the largest in its time. Apple addressed the challenge of finding quality music so well that people would pay to download songs from iTunes even though free piracy services still existed. By reframing the problem from listening to music to finding and sharing music, Apple created a product and a platform that would dominate the music industry for years to come (IIT Institute of Design 2009).

2.2.6 Bold Innovations

As the final didactic teaching moment for participants of the KCU Datathon workshop, a framework was presented to help participants categorize innovations and to be open to bold, groundbreaking innovations. This framework categorized innovations as either step, jump, or leap (Fig. 2.3).

Often, ideas that are seen as bold innovations are simply not as disruptive as one might think. These ideas are predictable and are the obvious iteration. These are step innovations. Jump innovations are where the starting point for the innovation is known, but the endpoint for the innovation is not. A jump innovation may start with a clearly defined problem but end with a solution that was unexpected. The last category is the leap innovation. These innovations are groundbreaking in that once they are introduced, they alter the landscape and workflows of their field forever. A leap innovation example is Airbnb where after its introduction, all around the world people changed how they viewed spaces in their home, travel, and the definition of a hotel (Thompson 2018).

Leap innovations are similar to Clayton Christensen's popularized term—disruptive innovation (Christensen 2012). These groundbreaking innovations are hard to materialize and often result in failure. Regardless of the risk involved in leap innovations, truly great companies, researchers, and entrepreneurs must take leap innovations and have a willingness for success and failure alike. Creative companies are

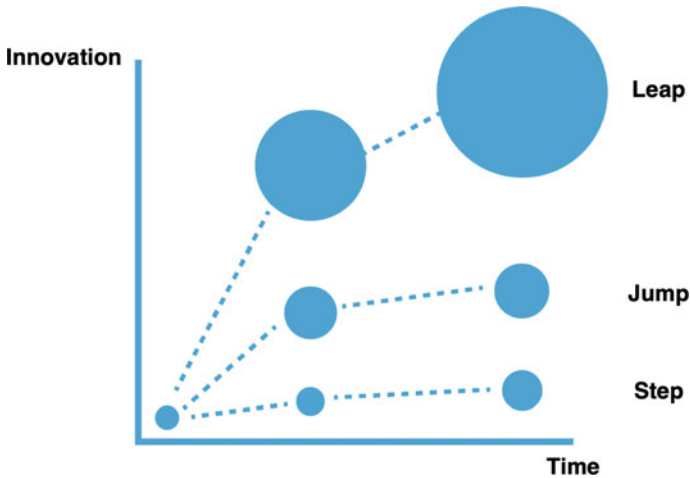


Fig. 2.3 Step, jump, leap

known for encouraging leap innovations by rewarding failure (Acton 2017; Bodwell 2019). Incentivizing failure loosens the shackles of conservative innovation from teams and enables bolder ideas. During the KKV Datathon workshop, a preference for leap innovation was stated as this opened participants to opportunities and realities with the greatest potential impact.

2.3 Part II: Application of Design Thinking

At this point in the KKV Datathon workshop, participants learned the skills needed to begin working through their respective design challenge in frailty. For this phase of the workshop, we use the five stages of the design thinking process as put forth by the Stanford D-School (Stanford D School 2010). Using the five stages, we helped participants indulge their creative capacity and apply skills learned earlier to develop new innovations. Participants began the design thinking journey by familiarizing themselves with the design briefs. A design brief is a short and concisely worded framing of the problem that needs to be addressed. Design briefs provide context and direct the designer where to begin the innovation journey (Open Design Kit 2018). A properly constructed design brief acts as the first stepping stone in the design thinking journey. Below are the design briefs that were supplied for participants of the KKV Datathon workshop.

2.3.1 The Design Brief

Three design briefs were provided for participants:

1. Preventative Care Measures Among the Pre-frail.
2. Addressing Challenges Among the Actively Frail.
3. Quality of Life Among Frail Individuals with Declining Health.

These three cases each captured different stages of life for the particular fictitious user, Joy Susan, who had unique needs and aspirations. All three cases pulled upon central themes and challenges among the elderly and all three cases needed thoughtful innovations to address the challenge presented.

2.3.2 First Case—Preventative Care Measures Among the Pre-frail

The first case introduced a fictitious, elderly woman, Joy Susan, who was 71 years of age, married, and overall decently sound in mind and body, but was beginning to show signs of decline. Joy Susan was pre-frail. She was on the cusp of showing the frailty phenotype—physical weakness, slow walking, low physical activity, low energy, weight loss—but was only partially frail. Joy Susan was experiencing functional decline and she and her husband were both concerned.

2.3.3 Second Case—Addressing Challenges Among the Actively Frail

The second case introduced Joy Susan as an actively frail older woman who was contemplating an upcoming surgery. As a frail individual, she had added concern for complications following her surgery. Her husband was especially concerned about the potential for delirium since he heard a doctor say this may be a complication (Verloo et al. 2016). Joy was actively weighing the possible benefits of her surgery against the potential complications that could result.

2.3.4 Third Case—Quality of Life Among Frail Individuals with Declining Health

The last case introduced a challenging design space where Joy Susan neared the end of her life. Joy had been severely frail for quite some time and her health outlook was not favorable. At this moment, Joy had difficulties embracing her situation,

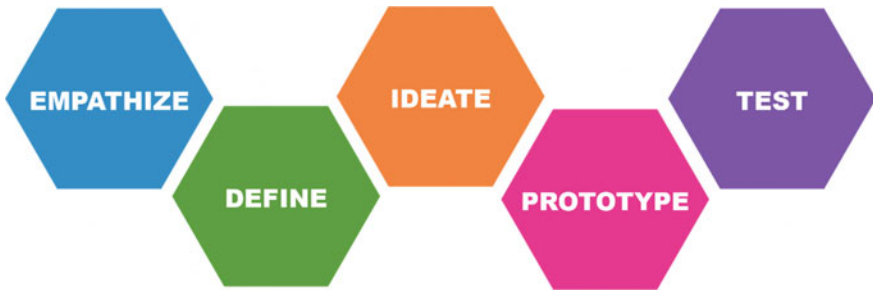


Fig. 2.4 The design thinking process

the physician had difficulties conversing to Joy about her options, and her husband struggled to embrace Joy's situation as well.

2.3.5 Beginning the Design Thinking Process

Each of the three design briefs posed a challenging problem with an unclear answer as to the best direction to follow. Especially for challenges such as those posed to Joy Susan where the immediate answer may not be known, design thinking is especially useful. By first uncovering Joy Susan's needs through empathy and then building from the empathy insights, teams had the chance to create profound new products and ideas. Participants started with empathy and continued through the full design thinking process (Stanford D School 2010) (Fig. 2.4):

1. Empathize
2. Define
3. Ideate
4. Prototype
5. Test.

2.3.6 Logistics

The original 25 participants were divided into teams of 8. Each team had a different design brief and worked through the following schedule with hands-on mentoring from the workshop leader. A PowerPoint highlighted directions for participants and a timer was used to keep the teams from lingering too long on any one part of the design process. Each portion of the below agenda is explained in further detail later on.

1. Empathize
 - a. 10 min: 2 rounds of 3 min interviews with the remaining time spent writing down thoughts
2. Define
 - a. 15 min: 3 min writing down personal insights, 3 min sharing insights, 9 min defining the point of view statement
3. Ideate
 - a. 15 min: 6 min crafting the ‘how might we’ statement, 3 min personal ideation, 3 min group ideation, 3 min selecting the top idea
4. Prototype
 - a. 10 min: all time spent building prototypes
5. Test
 - a. 10 min: 3 min per team sharing their user’s story, needs, aspirations, and the insightful innovation.

1. **Empathize**

Within their teams, participants created pairs and interviewed each other about their particular design brief. The difficulty with this form of empathy was that Joy Susan was not present for individuals to question or interview. Rather, participants drew upon their relatives, interactions with elderly adults who had similar stories, or own opinions about how Joy Susan might feel with respect to each design brief. At the end of the Empathize section, Joy Susan became a much more real individual with desires and needs that were both complex and embedded within her relationship to her family, husband, job, and more.

2. **Define**

The define stage was marked by teams sharing insights found through empathy interviews and then later defining the point of view (POV) statement (Rikke and Siang 2019). It was important that groups share their notes from empathy since the interviews were conducted within pairs and not all team members had the same conception of their Joy Susan. The difficult part of the Define section was creating the POV statement (Fig. 2.5).

Using a prompt, teams each spent the next few minutes identifying the problem Joy Susan faced that they found to be most poignant. The POV statement needed

Joy Susan needs a way to _____
(verb)

because _____
(surprising insight)

Fig. 2.5 POV statement fill-in-the-blank

to have two components: (1) an action that Joy Susan had difficulties accomplishing and (2) a reason as to why this action was important to Joy Susan. The first part of the POV statement identified a challenge in Joy's life whereas the second half drew upon Joy's unique needs and aspirations. In general, teams needed help identifying a problem that needed to be accomplished without providing a solution as well. During the Define phase, no solutions were provided. Rather, only problems were shared and the reasons as to why the problems were pertinent to the user.

3. Ideate

During the Ideate phase, teams were finally able to start working through creative solutions to Joy's challenges. The Ideate phase was broken into two sections: (1) crafting a how might we (HMW) statement and (2) ideating around the HMW. A HMW statement is a launch pad for generating ideas. *How* opens the team to the reality that solving Joy's challenge is possible. *Might* shows the team that it is alright to fail during this process. *We* shows the team that this process is inclusive and collaborative (Google 2018). Crafting a proper HMW statement involves providing just the right amount of specificity to hint as to the direction for innovation while building upon the user's needs and aspirations. For instance, an HMW statement that is too narrowly focused is as follows:

1. *How might we* provide digital resources in mobile format to guide Joy Susan through her pre-operative procedure

This HMW statement provides a solution already to Joy's challenge with surgery: digital resources in mobile format. The HMW statement also does not tie to any insights about Joy Susan. Lastly, this HMW statement does not enable the participant to generate that many ideas due to its narrow focus. The following HMW statement is too broad:

2. *How might we* lessen Joy's fears?

Why is Joy afraid? How do we know where to target our ideas and innovations? This HMW statement is so broad that a designer would not know where to begin in ideating solutions.

3. *How might we* engage Joy's family through the pre-operative journey to lessen Joy's fears about family relations falling apart?

This HMW statement identifies a direction for the innovation—engaging family pre-operatively—and provides an insight to ground ideas that are provided—lessen Joy's fears about family relations falling apart. The HMW statement is not too broad and it is not too narrow. It leads designers to the sweet-spot of ideation.

After crafting the right HMW statement, teams used sticky notes to write down ideas that could solve the problem and then shared these ideas as a group. Three minutes were provided for personal ideation since solo-ideation leads to greater quantity of ideas produced. Then, group ideation followed where participants shared ideas together.

4. **Prototype**

Once teams had selected their desired solution for Joy’s challenges, teams were directed to prototype their idea. The only supplies provided for teams were markers, sticky notes, and easel-pads. Teams created paper prototypes—drawings or sketches—or acted out their prototypes to convey the innovation. The key to a successful prototype is the ability to create something tangible that can be used or engaged with by a real user.

5. **Test**

The final step in the design process and the workshop was to test the prototypes with each other. The form of testing used during the workshop was a design critique (David and Yu 2017). Each team had 3 min to present Joy’s challenge, her desires and needs, and then the solution created to solve Joy’s problem. Following the presentation, other teams provided feedback that would be incorporated into future versions of the prototype.

2.3.7 The End Result: Khon Kaen University Datathon Workshop 2018 Prototypes

Pre-frail: Full Recovery

The first team was tasked with helping Joy overcome her challenges as a pre-frail individual who was sensing a looming health decline. The team identified the potential disconnect between Joy and her husband, Sam, that would arise as Joy’s health declined. Who would take care of Joy if Sam wished to go outside? How could Joy stay connected with Sam as her health declined? The proposed solution: *Full Recovery*, a preventative home visit and consulting service to deter health decline and falls among the elderly. *Full Recovery* works to assess Joy’s home environment before she becomes actively frail to see if there are features of her house or her living situation that could pose potential threats to her as she ages. *Full Recovery* would then create a list of activities that Joy performs at home for the physician to see. This way, the physician has a better sense of what is valued by Joy and how Joy’s healthy decline is manifesting itself in activities that matter to her. If Joy enjoys gardening, the physician would know this and be able to see if Joy’s treatment plan enables more gardening in the future.

Actively frail: Re-happy

The second team was tasked with designing an innovation for an actively frail Joy who was contemplating an upcoming surgery. The team identified the challenges of depression among the elderly, especially following surgery due to prolonged bedridden periods as a particular challenge for Joy. This team’s solution was *Re-Happy*, a virtual reality system to allow Joy to explore and travel within a virtual

world during the course of her recovery. The game would enable Joy to travel to new places, complete challenges, and also track her recovery. This innovation was addressed Joy's desire to stay immersed in the outdoors, which was a source of happiness for Joy, even during her prolonged bedridden recovery process.

End of Life: FulFill

The third and final team redesigned the end of life experience for Joy. This team tackled the communication breakdown that would occur for Joy through a platform called *FulFill*, which was a data-gathering platform to capture Joy's preferences and updated the family and physicians on Joy's desired course of action. The platform provided navigable care options and showed possible end of life scenarios for Joy to decide how she wanted her treatment to proceed. This team tapped into the difficulty Joy would experience in understanding her care options at such an advanced age and also relaying her care desires with her family. *FulFill* was a platform for sharing health information and end of life decisions that could be digested by both family members and physicians alike.

2.4 Conclusion

In global health, design thinking can be applied to ensure that resources, products, and services address the true needs of the people they intend to serve. By understanding the needs of the target population and testing proposed solutions rapidly, design thinking teams can avoid common pitfalls when delivering on a new innovation. Whether the challenge is to implement an intervention in a small community or devise a population level digital solution, innovators can benefit from the principles and application of design thinking. During the brief KKU Datathon workshop on design thinking in global health, participants formed teams and quickly exercised their creative capacity by delivering three tailored innovations to address challenges among frail older adults. Most certainly, these three innovations as they were delivered at the KKU Datathon workshop were not finalized, ready to implement, nor sustainable. One quick entanglement with the design thinking process did not bring about finalized products, but it most certainly guided the teams where the solution might be that would address a true user need. For readers who are curious about bringing products to market and building sustainable startups, an entrepreneurial guidebook will help. For readers looking to build creative capacity in their organization and lead teams that produce insightful innovations, design thinking is the avenue to pursue.

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