CHAPTER 6

Design Thinking: Problem Solving in the Diverse Workplace

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Overview

Numerous studies have been conducted on the growing worker diversity of corporate, nonprofit, educational, and other workplace settings over the last two decades. However, even as the need for workplace culture to embrace change is recognized, the question arises how are vital decisions made to promote diversity throughout departments as decisions are made for new innovative products, solutions, and resources? The provision of a diverse and thriving workplace is the primary concern of most conscientious mangers. To promote this change, Design Thinking (DT) principles can be implemented so a variety of perspectives are utilized for strategic problem-solving.

Managerial levels of thriving innovative corporations, nonprofits, and government workplaces aim to immerse their employees in DT principles and implementation for enduring positive change and problem-solving. This chapter provides the definition, highlights, and discussion of DT implementation in the corporate, educational, governmental, and

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nonprofit workplaces. Through practical scenarios, readers are guided through the human-centered ventures of DT principles for problem-solving and the planning and implementation of transforming recommendations revealed through the process.

Design Thinking for the Diverse Workplace

The term Design Thinking (DT) in this chapter refers to a human-centered, structured process for innovation that can be applied to product, service, and business design. DT is also used for problem-solving in social services, such as developing promising urban youth futures, or funding well-digging ventures in Africa, or improving the delivery of science lessons for fifth graders. As Fig. 6.1 indicates, DT employs a continuous evolving process through the following stages: Empathize, Define, Ideate, Prototype and Test. Within each stage, problems are framed; questions emerge, along with more ideas, until the best answers are chosen. The steps can be simultaneous or linear and they are repeatable (Mickahail 2015).

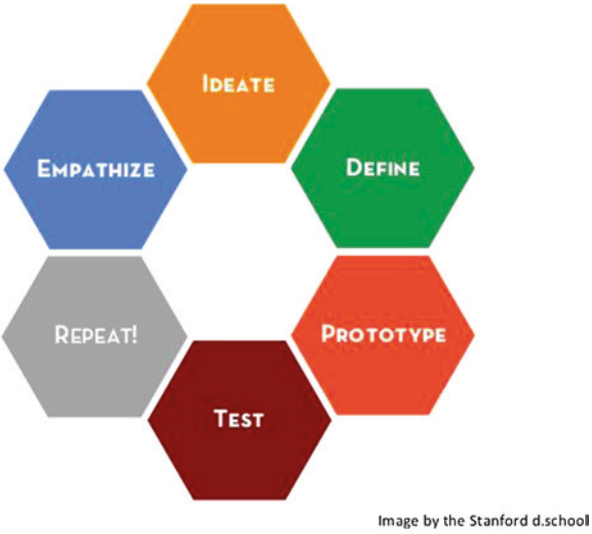

Fig. 6.1 Stages of the design thinking process (d School 2015)

Definition

The popular term of "design thinking" refers to a human-centered, structured process for innovation that can be applied to product, service, and business design as well as problem-solving in social services. The success of Design Thinking is found in situations that call for creativity and innovation. In business, DT needs team collaboration and a balanced consideration of product desirability, feasibility, and viability to work. Within each DT stage (see Fig. 6.1) is the framing of problems, then the emergence of questions with more ideas until the clarity of answers become apparent. The steps can be simultaneous or linear and they can reproduce the same process until a solution is found. Many valuable design thinking business trainings during the last 10 years are attributed to DT guru David Kelley and his brother Tom Kelley of IDEO. David helped to launch Stanford's d School and established executive and educator DT boot camps around the world. These DT boot camps emphasize leader and team application of DT principles while also nurturing each participant's creative brain. The Kelley brothers declare that all can activate their creativity in their book, Creative Confidence.

Human-Centered Design and Wicked Problems

The human-centered approach or ***human-centered design (HCD)*** overlaps with and reinforces the DT process, because DT always begins with empathy toward the customer or target population's needs. DT cannot exist without considering the human element that the "problem-solvers" seek to address. Whether the goal is to create a hospital system that is more sensitive to meeting patient needs and comfort or to invent a user-friendly computer software application, DT requires the use of human-centered considerations to be successful. Often the terms (DT and HCD) can be used interchangeably when innovation teams gather to solve wicked problems. A ***wicked problem*** as defined by Kolko (2012) is as follows:

> a social or cultural problem that is difficult or impossible to solve for as many as four reasons: incomplete or contradictory knowledge, the number of people and opinions involved, the large economic burden, and the interconnected nature of these problems with other problem.

HCD is a DT-related innovative problem-solving method that seeks out custom-made solutions to problems people need to solve. Creative empathy is at the core of IDEO's HCD trainings for educators, social entrepreneurs, and nonprofit organizations (Stanford d school 2015) (Fig. 6.2).

Human-Centered Design and Wicked Problems

When we think of empathy, we may remember what Atticus Finch said in To Kill a Mockingbird (Lee, 1960, p. 85).

> If you can learn a simple trick, Scout, you'll get along a lot better with all kinds of folks. You never really understand a person until you consider things from his point of view, until you climb inside of his skin and walk around in it.

Without empathy, it is difficult to have design or human-centered thinking. Empathy is the cornerstone of all positive change and innovation. Empathy is worth time and effort to ensure empathy is nurtured and rewarded in organizations seeking effective change and problem-solving.

Rather than hammer out and describe examples of bias and other behaviors lacking empathy, it is best to embark on group exercises, which may elevate the empathy awareness of group participants. The group activities in this chapter are created to cultivate the empathy of those who participate with an open mind.

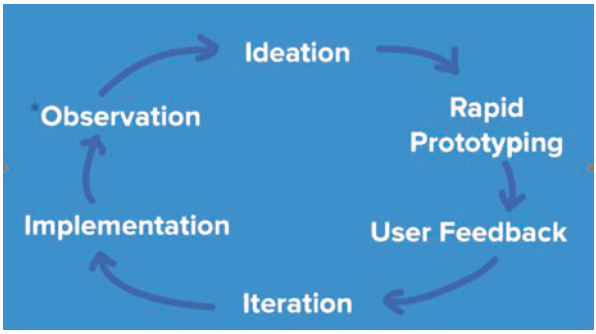

Fig. 6.2 The process of human-centered design (d school 2015)

Group Activity: Building Empathy
Begin with the goal in mind: a satisfied consumer. Discuss in groups of 3–4 people:

1. How does a consumer experience the delivery of a service? What quality should the service be?
2. Share with your group a memory of an epic product failure. One example is the recently recalled Samsung Galaxy Note 7 cell phones for flaming batteries.
3. What caused the failure? Was it widespread? Was anyone hurt? Why is product failure a challenge? How is it overcome? Did the company reach out to you or a friend as a consumer? Were or weren't you or your friend satisfied?
4. Refer to the above questions for a diversity scenario in the workplace. Consider a recent misunderstanding in your workplace, such as a cultural conflict. Discuss this misunderstanding; What went wrong? Who was offended? Did the parties try to mediate? How did it affect the work environment?
5. How did this exercise build empathy?

Group Activity: Problem-solving
Form small groups of 3–4 people and discuss the following problem-solving exercise and questions. The greatest benefit of applying DT approaches is learning teaming skills to solve wicked problems. Select a common problem of diverse workers, such foreign accent comprehension/cultural challenges, or employee bias

1. How can your team make the new worker feel welcome?
2. What empathy building background do you discover?
3. How can this be a learning experience for the new and existing employees?
4. Will this change the company workplace in any way?

Summarize the findings of your group and share with all participants of this activity.

Design Thinking Case Studies

Harnessing innovation to meet people's needs is part of the history of the Industrial Revolution. Countless important inventions, such as the steam locomotives, the Model T, telephones, telegraphs, electricity, the light bulb, the phonograph, and telephone and film industry changed agrarian and urban communities into thriving modern centers. Along with these inventions came new problems to solve with early design failures and fallout, such as pollution from coal fired factories and the migration of populations from family farms to city-centered jobs. All these changes required more problem-solving and innovation to meet the changing needs of people and communities impacted by rapid development. The twenty-first century is no different and society is changing

more rapidly than the inventions created to manage the change. As the world is literally a Global Village, the merging and meshing of diverse people is the norm in the workplace and all realms of life. This unleashed series of everyday change is altering the world and workplaces faster than leaders can plan to address the impending issues.

When businesses need collaboration for team building and multi-faceted perspectives for product planning, development, and sales, DT can assist. Work Scenarios that call for creative thought and inventiveness can benefit from the DT and the human-centered approach. Many managerial levels of thriving innovative corporations, nonprofits, and government workplaces aim to immerse their employees in DT principles and implementation for enduring positive change and problem-solving. Design Thinking implementation developed through the process of historic inventions to twenty-first-century human-centered space age design utilizing diverse collaborative team building. DT for problem-solving in product innovation includes all team members' skill sets to see the entire spectrum of ideas that contribute to invention and/or problem-solving.

Design Thinking and Collaboration: Edison

Thomas Edison accessed early DT strategies to create a collaborative model for product development. Caldecott (2013) writes that the success of inventor Thomas Edison's collaborative culture nurtured twentieth-century innovation. Edison promoted a growing culture of team communication and collaboration. This same type of collaboration is used by business innovation leadership to meet the consumer needs of the twenty-first century and beyond (Mickahail and Andrews 2015).

A Corporate Commitment: Infosys in India Trained 97,000 in DT

Is design thinking thriving? We only have to read the headline *97,000 Infosys staff is trained in design thinking methods* (Sen 2016). The Infosys chief executive officer Vishal Sikka planned to actively encourage design thinking processes through his company. Corporate executives that lack understanding and training in this vital collaborative approach to development may miss out. To ignore DT as a workforce resource is to forgo the opportunity to impress twenty-first-century consumers with human-centered services and products.

Exercises in Culture Learning

New learning takes place when we can reference or access a connection to the new concept, such as having a reading skill in one's heart language makes to easier to use the same skills to learn to read in a second language. This is called ***language transference*** (Carlo et al. 2004; Echevarria et al. 2004). In the same way, we can begin to appreciate previously unknown aspects of learning cultural diversity through cultural reference or transfer exercises. Group participants can learn at least to appreciate some diverse features of cultures by first accessing what they know of their own culture. The following exercises will take participants into a cultural self-reflection and appreciation for another culture (Fig. 6.3).

Group Activity: Roots
Form small groups of 3–4 people and discuss the following problem-solving exercise and questions: Share about your ancestral roots.

- From where did you family immigrate?
- How long ago?
- What special foods do you eat during the holidays?

Think of your favorite food.

- How would you feel if you could no longer make or eat this dish?
- Do you have any friends who are from another culture?
- What new things, custom, or information have you learned from them?
- How can other cultures contribute to your workplace?

What would help you to better understand them?

Fig. 6.3 Courtesy of Flickr creative commons (2016)

Group Activity: Culinary Celebration
Plan a class potluck featuring foods from all cultures your class represents. Make sure those from French heritage bring a French dish, etc …

Discuss the questions below.

- How does DT meet human needs for cultural connection?
- How does this product development approach differ from traditional product development?

Design Thinking: The Gateway to Human-Centered Innovation

DT is the best approach to include diverse perspectives to create new human-centered designed products. Effective product innovation virtually sells itself because it meets a gap in the market. The goal is to meet consumer needs, wants, and desires before they are realized. Recent inventions of products that meet this criteria are the iPhone and related Apple series of products, services such as Amazon, Google, and Citrix to name a few.

These products and services are the result of an intentional Design Thinking process that embraces and includes all team members' contributions in product development and company problem-solving. DT is a diversity type of thinking that results in unusual levels of economic success by meeting consumers needs that are yet to be defined.

Many managerial levels of thriving innovative corporations, nonprofits and government workplaces aim to immerse their employees in DT principles and implementation, for enduring positive change and problem–solving.

A Wicked Problem, a Lack of Workplace Diversity

Lack of diversity in the workplace is a wicked problem. The logic of DT and HCD is that the workplace reflects society and customers and is diverse by definition. How can the wicked problem of low levels of workplace diversity be remedied?

1. The focus must be on the user of the product in DT, so in solving workplace diversity the focus is in those who need to be included (increase inclusion of minorities, women, and persons with disabilities).

2. Consider that clients or employees are the workplace's greatest assets. This approach contrasts to the familiar company-centered philosophy in which clients and employees are expected to feel "grateful" to be served or work for a company.
3. A model company must seek to improve diversity by considering the experience of diverse employees throughout their career paths—and the specific challenges that require attention to move forward.
   a. With DT problems facing diverse employees, target customers are examined by teams to create scenarios or models. Lived experiences are shared by employees, or customers and themes from their experiences are shared to list solution ideas.
   b. One way companies are moving toward greater inclusion of the diverse workforce is through mentorship programs and team development with persons from different fields to address diverse client needs. This is found at companies such as Google, Agilent, Uber, Amazon, and Citrix.
4. Successful inclusion involves the willingness to prototype remedies to inequitable working conditions and provides opportunities for diverse workers to succeed. This involves the initial consideration of all ideas generated during the DT process. Some ideas will prove to be useless but all must be considered at the table to encourage freedom of idea flow and exchange. This cultivates a culture of openness and willingness to try new ideas.
5. Problems will surface that require solutions, so it is beneficial to use DT as a empathic, creative, and open-minded approach to improve workplace diversity and provide meaningful solutions to wicked problems such as increasing workplace diversity.

Group Activity: Discussion
Form small groups of 3–4 people. Read 1–5 above and discuss the following questions

- How does the DT product development approach differ from traditional product development?
- How are team member's ideas considered?
- Does your workplace use the DT process?

Group Activity: Wicked Problems Solved
Select a common wicked community problem such as graffiti on public places. Divide into design team roles.

- Inventor
- Observer
- Creator
- Designer
- Mentor

Now, follow the steps listed below:

- Define the problem and possible cause of the graffiti in a selected public place, i.e., wall of public library. How will each person develop empathy? What or whose needs are not being met?
- Why is it happening? Who may be doing it? How can you verify your assumptions? Provide research on the problem (i.e., online news search).
- How have other communities dealt with the problem? How have they dealt with offenders? How can offenders be reformed? Have any new initiatives evolved?
- What resolution can each team member contribute? Decide what ideas would work best as a team.
- How would you implement the ideas? How would you know if the idea is working? Would your town officials agree? Who would you need to network with to make this resolution possible?
- Why is mentorship important to new and diverse employees?
- Share good and bad examples from your work experience. What worked? What did not?

The success of Design Thinking is found in situations that call for creativity and innovation. In business, team collaboration is needed and a balanced consideration of product desirability, feasibility, and viability to work. DT for problem-solving in product innovation includes everyone to see the whole perspective of ideas to contribute. Everyone's contribution is important in the ideation stage. The best ideas rise to the surface through the DT process. True innovation to meet human needs is not new. The history of the Industrial Revolution of the last century is riddled with product successes (e.g., telegraph to telephone, the steam engine to moving film). The list is endless with details of ideas for practical innovation development.

Often these early ideas came with negative consequences, such as pollution from coal-driven engines and product failure, which led to more innovation. Design thinking is no longer confined to the R&D

department! Governments now utilize it to improve the function of bureaucracy and ultimately meet the needs of citizenry. In the halls of government to social justice volunteers, DT is a tool to solve wicked problems.

Design Thinking in the Danish Government: Mindlab

The ***Mindlab*** is a creative collaborative venture of several governmental branches in Denmark. The Ministry of Business and Growth, the Ministry of Education, the Ministry of Employment and Odense Municipality formed a coalition with the Ministry for Economic Affairs and the Interior. They work with private companies to develop policy to promote employment and education in the digital and entrepreneurial arenas. The MindLab serves to assist and inspire business managers and workers to view their labor from the "outside in." They view their work with empathy for the consumers to promote innovation in products and ideas.

This Danish government model is an inspiration for some new programs using DT. In the USA, DT has support from former President Obama who declared, "We must harness new ideas and technology to remake our government …" (White House 2013). Several DT initiatives have begun with support directly from the White House: WH Stanford Medicine X, WH Innovation Fellows, US Digital Service, and DT trainings in the US Armed Service and the State Department (Martin 2009; U.S. Army TRADOC 2014; Chu 2016; White House 2013).

Nonprofit Workplaces and Volunteers

The organization ***Code for America*** works at the city and state levels and provides opportunities for designers to volunteer their skills. It was established through an initiative begun by the Obama White House Innovation Fellows to give designers a year-long experience to work on certain problems. The problem that Code for America wished to address was the bridging of the digital gap by promoting digital literacy in needy communities.

Group Activity: Promote Volunteer Efforts
Community Volunteers.

- Form small groups of 3–4 people and discuss the problem-solving exercise and questions.
- Read about the Code for America site and see what volunteer opportunities exist in your community at https://www.codeforamerica.org/join-us/volunteer-with-us.

Now, answer the following questions:

- Would you like to volunteer to help promote digital literacy in your community? Or do you know someone with coding skills who would be interested? Is coding the only way to support digital literacy?
- Why is coding and community support for coding important? How does coding relate to DT?
- Should everyone know how to code? Why or why not?
- In what other place does a digital divide exist? Why should we care?
- Share with your audience what answers your group discussed.

Summary

In this chapter, we were introduced to DT for the diverse workplace and the definitions of HCD and wicked problems. Group exercises focused on DT-HCD and how to build empathy. While also discovering more problem-solving applications of DT, we studied how Design Thinking is a creative way to embark on problem-solving as a gateway to Human-centered Design. Design Thinking is not new and many of its processes were used by America's early inventors such as Thomas Edison. He used collaboration to build his innovation teams and solve problems. In the twenty-first century, many businesses have accessed the benefits of DT staff training. One notable company is India's Infosys comprehensive DT training of 97,000 employees. Through the group activities, students were introduced to Design Thinking and Human-centered Design concepts and processes. Special emphasis and interactive group exercises focused on empathy, collaboration, and related DT skills to solve wicked problems in the workplace.

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