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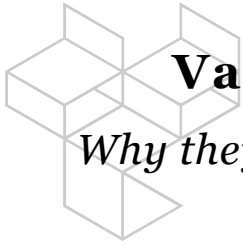
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Varying Mindsets in Design Thinking

Why they change during the process and how to nudge them

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ABSTRACT

A Design Thinking project typically demands the application of a process with distinct stages and the execution of the challenge in interdisciplinary teams (Lewrick, Link, & Leifer, 2018, p. 38 and 144). The stages require various skills and mindsets that only can be mastered with experience and time (Brown, 2019, p. 3). This paper indicates that one of the main reasons for that is the fact that there is not one set of mindsets that should prevail through the whole process but that there are mindsets that need to change with the tasks to be done and that these changes are easier to manage for creative people. However, the interdisciplinary teams will always lead to team members that are new to Design Thinking (Liedtka, 2018, pp. 73–74). So this paper concludes with some suggestions for methods that can help to shift the mindsets of the untrained Design Thinkers.

Keywords: Creativity, Design Thinking, Mindsets, Influence, Psychology

INTRODUCTION

Since 2004 Design Thinking gets a constantly growing interest. Figure 1 shows the continually rising number of searches after the term "Design Thinking" worldwide. A search in news channels delivers enthusiastic headlines like "Design thinking: A superpower for the challenges of modern businesses " (Banerjee, 2019) or "Publishing needs more design thinking" (Fulwood, 2019). But there are also critics calling Design Thinking "absurd" (Vinsel, 2018) or even "Bullsh*t" (Jen, 2017). One prominent complaint is the fact, that Design Thinking teams include non-designers and often do not reach the aspired goals. The following text argues that Design Thinking – against common statements – does not need one set of mindsets, but changing mindsets according to the need of the given stage, and that non-designers need (more) guidance to reach these goals.



Figure 1: "Design Thinking" in Google Trends

<https://trends.google.de/trends/explore?date=all&q=design%20thinking>

DESIGN THINKING AND ITS CHANGING DEMANDS

Design Thinking is an approach to problem solving and innovation. "Design thinking offers a structured framework for understanding and pursuing innovation in ways that contribute to organic growth and add real value to your customers." (Naiman, 2019) Its origins can be already seen in Plato's thoughts to participatory design and later for instance in the works of Ockham, Hume, and Kant (Curedale, 2019, p. 16). "Like all great ideas, it has been an evolution, influenced by thousands of people." (Spencer, 2019) The theoretical fundament as a creativity method with a defined process "Problem Statement Thinking" can be determined in John E. Arnolds "Creative Engineering" in 1959 (Arnold, 2016; von Thienen, Clancey, Corazza, & Meinel, 2018).

The evolution of Design Thinking resolved in manifold models that can be lead back to Tim Browns Inspiration-Ideation-Implementation framework (Brown, 2008, pp. 88–89) and the Double Diamond of Design (Design Council, 2015). A characteristic feature is phases that demand divergent or convergent thinking alternate, typically split in two spaces: the problem space and the solution space (see Figure 2).

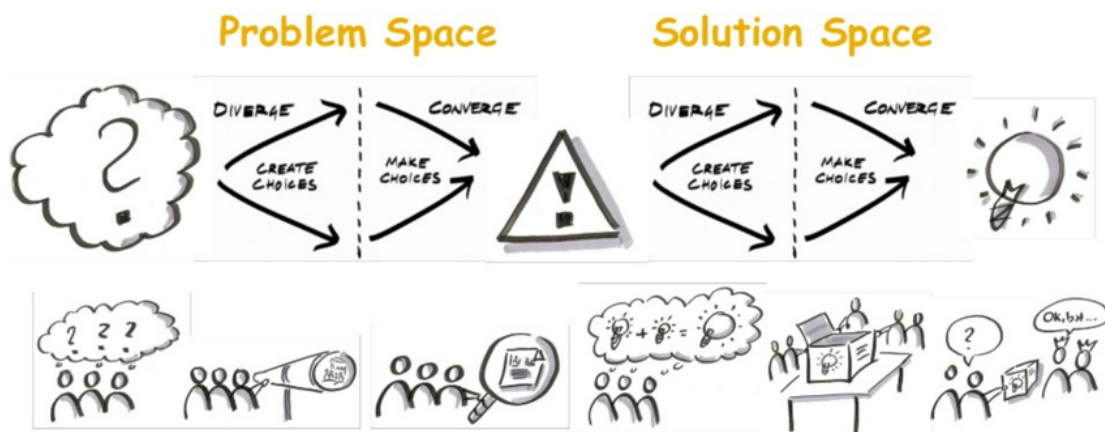


Figure 2: A visualisation of the Design Thinking process
(HILDENBRAND, 2012, P. 29)

Also, a typical for Design Thinking models is the demand for a specific mindset (Both & Baggereor, 2010, p. 3). A mindset is "a set of activated cognitive procedures" (Gollwitzer & Keller, 2016, p. 1). It is often more palpable coined as mental attitude, that influences our ways to think and to act (Meier & Kropp, 2010, p. 179). So, how we perceive information and how we react on it is highly affected by our mindsets (Thum, 2012). In a comprehensive literature research Schweitzer, Groeger and Sobel identified 11 mindsets from "Empathetic towards people's needs and context" to "Critically questioning" (2016, pp. 6–13). Figure 3 shows their iconographic visualisation of the whole set. Dosi, Rosati and Vignoli even identify 19 Design Thinking mindsets (2018).

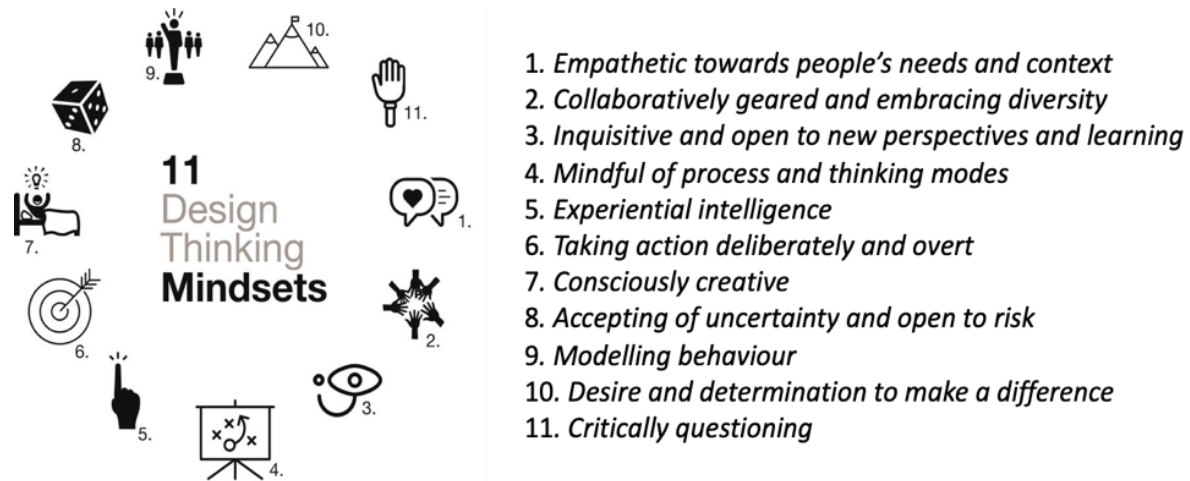


Figure 3: Design Thinking Mindsets
(Schweitzer et al., 2016, p. 6) layout by author

When we take a closer look at the process and the stages of Design Thinking, it gets evident, that these mindsets, despite their multitude, only build a basis, a common denominator for the whole process (Brown, 2019, pp. 32–34). But, each stage needs different ways to perceive, process and react to information. Tom Kelley identifies ten roles, with specific attitudes and abilities that enhance the effectiveness and efficiency of Design Thinking processes. He describes them as different personas, typically even as professional specialists (2016).

So, should a Design Thinking team just hire and fire additional people to support these tasks? Partially, this is sensible and recommended. With complex projects, it's even inevitable. But still, there must be a core team, that is stable through the whole endeavour, and that needs to be active in all stages (Brown, 2019, p. 35) Design Thinking lives on its team with people with different capabilities and expertise, typically necessarily consisting of experienced designers and untrained non-designers (Lewrick, 2018, p. 36). Creative people show the flexibility of cognitive processes that leave others lacking (Beatty et al., 2018, p. 1090). The mastery Tim Brown describes as ideal (2019, p. 3) is very often not to reach with the line-up demanded by the challenge (Dam & Siang, 2018). Thus, the conflict arises between a stable, interdisciplinary team and the desired cognitive abilities of the team members.

Here the facilitator comes at play. The facilitator is the team leader, the person who moderates the Design Thinking sessions, which keeps the process running and the creative level high (Curedale, 2019, pp. 155–156). "A leader who is experienced in maintaining the right mix of mindsets is essential" (Dam & Siang, 2018, para 5).

After explaining the changing mindsets, we will lay out some methods facilitators can use to lead the team members to the needed cognitive attitude.

THE CHANGING MINDSETS

As elaborated above, mindsets are activated cognitive procedures. The tasks that each stage of Design Thinking involves, demand for different thoughts processes and ways to interact with one's environment. To keep them separate and not to try to do them at once is one of the fundamental mindsets of Design Thinking: "Be Mindful of Process" (Both & Baggereor, 2010, p. 3). This is wise, as Edward de Bono points out: "The main cause of confusion is trying to do everything at once" (2008, p. 1).

Even if de Bono talks about thinking in general, his books "Six thinking hats" (2016) and "Six Frames: For Thinking About Information" (2008) fit very well to Design Thinking. He describes the six hats not as personas but as "modes of behaviour" (2016, p. 6), the frames are meant to enhance the sensitivity of the mind to specific aspects (2008, p. 4). Similarly, Tom Kelleys "Faces" are not personas but roles that a person can play according to the need at hand (Kelley, 2016, p. 13).

Gary Klein describes mindset as a belief (2016), a way we perceive and with that think of our surroundings. In his book "Seeing What Others Don't" he describes how different beliefs and the way to handle them change our possibilities to gain insights. He explains strategies to modify beliefs and how this changes the way we understand what we see (Klein, 2017, pp. 101–108). Figure 4 shows what can activate a change, how beliefs are altered, and how this changes our perception.

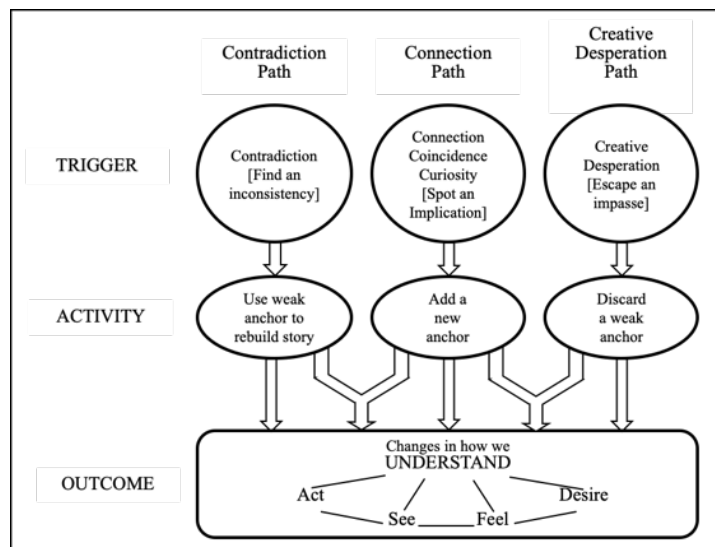


Figure 4: Triple Path Model of Insight
(Klein, 2017, p. 104) layout by author

Research of the authors in both literature in Design Thinking and psychology on creativity revealed a set of relevant cognitive procedures. The analysis resulted in five pairs of opposing thought and action processes that outline the needed mindsets in Design Thinking (see Table 1).

Table 1
Contradictive thought and action processes derived from creativity research

Collecting	↔	Analytical
Observant	↔	Envisioning/Imagining
Developing	↔	Judgmental/Selective
Empathic	↔	Withdrawn / Introverted
Spontaneous	↔	Reflective

Structuring mindsets as opposing pairs is common in positive psychology to ease definition and comparison (e.g. Callahan, 2016; Dweck, 2019). Ongoing research (action research and quantitative surveys) is analysing the attributes and their importance for each stage (following the d.school model).

Parallel to the extensive literature study the researchers conducted a series of Design Thinking projects to examine the assumption of the changing mindsets by observation and qualitative research. So a triangulation with literature research, field study and surveys serves to prove the proposal (Flick, 2011). Finally the results will be discussed with Design Thinking experts to evaluate their practical value. The analysis of the data is still ongoing but first probes show promising outcomes.

METHODS TO AFFECT MINDSETS

One point that the research indicates is that Design Thinking process indispensably needs creative people (i.e. people trained and able in creativity) as they can follow the ever-changing demands of the tasks like others don't. As Mihaly Csikszentmihalyi states: "they [creative people] show tendencies of thought and action that in most people are segregated. They contain contradictory extremes; instead of being an 'individual,' each of them is a 'multitude'" (2013, p. 57).

But as Design Thinking teams necessarily are transdisciplinary, all team members need to be equal (Betancur, 2017, pp. 7–8) it is the task of the facilitator to help them all to find the right mindset to be efficient (Curedale, 2019, p. 160). Design Thinking pros are aware of this fact (if not right now in the given details) and strive to get the team productive. They use for example warm-ups: These are exercises comparable to those athletes or musicians use to prepare body and mind for the successive activity (Uebernickel, Brenner, Naef, Pukall, & Schindlholzer, 2015, p. 192).

Another example is the design spaces that ideally can give the team the chance to stand, sit or lounge because the bodily attitude affects the mental attitude (Gerstbach, 2016, pp. 162–163). A highly prominent and very often used method is the cloze "How might we...?". Duane Bray explains in Leah Fessler's text how every word affects the attitude of the team: "'How' asks employees to be descriptive, 'might' suggests there are good answers, but not a single correct answer, and 'we' evokes inclusivity and teamwork" (Fessler, 2017, para 4)

Against common belief, mindsets can be changed. "One of the most powerful aspects of mindsets is how quickly they can be shifted, and how powerful the consequences can be. Unlike skills that have to be practiced again and again, mindsets sometimes show dramatic shifts" (Klein, 2016, para 12).

Based on the definition that a mindset is a mental attitude, we can follow Maio, Haddock and, Verplanken that mindsets are influenced by cognition, affect, and behaviour (2018, p. 113). Some small examples:

- Cognition: Explanations and logical reasoning can affect mindsets. So, if the team members comprehend why a particular way of thinking is useful for the given task and if they get guidance how to reach it, they tend to concede to it (Vogel, 2016, p. 139). In practice, the facilitator can explain the importance of being collective in the observation phase and advice on how to amass information without losing it.
- Affect: Mindsets can be influenced by affection. If the team member has a positive emotion towards the shift, he or she might follow. Role models work with this effect. A person (or archetype) with the right enigmatic profile can trigger a new train of thoughts (Basford & Schaninger, 2016). In practice, to tell a

(compelling) story about T.A. Edison and his never faltering way to forge the light bulb can push the developing mindset for prototyping.

- Behaviour: Direct experience has a strong influence on mindsets. If a person is exposed to a situation where he or she can easily get in touch with the demanded task a positive stance to the needed mindset is probable (Maio et al., 2018, pp. 168–169). Warm-up exercises that demand impromptu reaction of the team members can help to enhance their willingness to spontaneity, e.g. in the ideation phase.

These small examples should show the vast possibilities the facilitator or the planner of the Design Thinking session has to stimulate the mindsets of the team members. The assessment of the needed nudges is one of the essential abilities of a facilitator (Lewrick et al., 2018, p. 180). The leverages are ubiquitous but most important is the direct interaction with the team members, the balance of rapport and professionalism, the instructions given, the time management or the way to intervene in challenging situations (Curedale, 2019, pp. 155–158).

CONCLUSION

The still ongoing research indicates that there are mindsets that need to change as the tasks change during a Design Thinking process. This fact – and the identification of the mindsets – is relevant for Design Thinking facilitators as they need to be aware of the needs of the process and the status of their team members. It is also relevant to give them advice how they can influence these mindsets to strengthen their teams.

This article is far from comprehensive to the given subject, but only gives an impression of the scope of the endeavour. The nature of mindsets, their application to the Design Thinking process and the instruments that can be given to the teams to achieve these mindsets need more in-depth investigation and elaboration.

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