

Taxonomy of design thinking facilitation

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Taxonomy of design thinking facilitation

Although the body of research on design thinking (DT) is growing, knowledge regarding DT facilitation in innovation projects is sparse. Through explorative case studies, we explore how facilitators understand and apply DT to innovation projects. Our findings reveal that different DT facilitators take markedly polar different approaches to DT facilitation. We advance the DT literature by establishing links with the group facilitation literature and developing a taxonomy of DT facilitation anchored by two opposite approaches to DT facilitation: a method approach and a co-facilitation approach. Our findings demonstrate that different interpretations of DT can lead to different facilitation practices. This insight is valuable for innovation project owners who hire DT facilitators, the research community, and facilitators themselves.

Keywords: design thinking; design thinking facilitation; group facilitation, design thinking practice; method approach; co-facilitation approach; innovation projects.

1. Introduction

Although design thinking (DT) has attracted increased attention from business and management scholars in recent years (Carlgren et al., 2016b; Dan-Ling, 2018; Kummitha, 2017; Micheli et al., 2018; Seidel & Fixson, 2013), DT research has received criticism, primarily from the design community (Kimbell, 2011; Tonkinwise, 2011). Critics feel that scholars' preoccupation with defining and conceptualizing the concept (Elsbach & Stigliani, 2018; Johansson-Sköldberg et al., 2013) has drawn attention away from the unique challenges associated with DT practices in different contexts (Carlgren et al., 2016a, 2016b) and from advancing knowledge on how DT is understood, interpreted, and applied.

It is important to investigate how DT is understood and interpreted, as DT can be challenging when applied in practice. Struggles and tensions often emerge during DT processes, as tools or methods can be difficult to understand, DT skills are difficult to acquire (Carlgren et al., 2016a; Leifer & Steinert, 2011), and communication styles are distinct (Simeone et al., 2017). Other examples of difficulties are conflicts between the demand for control and disruption, and tensions linked to non-linear and abductive problem-solving practices (Carlgren et al., 2016a; Coco et al., 2020). These identified challenges and struggles further emphasize the importance of focusing on how innovation projects are facilitated based on DT, as the practice of DT further reveals how DT is understood (Minder & Lassen, 2018; Mosely et al., 2018), particularly with regard to how DT is translated and conceptualized in different settings (Carlgren et al., 2016a). We therefore argue that DT facilitators play an essential role by imprinting multiple and heterogenous audiences with DT

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practices through their actions and interpretations. We define DT facilitator as a person who introduce DT to groups or organizations and facilitate projects based on own understanding of DT. Given the essential role of DT facilitators in innovation projects, it is important to understand differences in their understandings of DT and DT practices. Consequently, we explore the following question: How can DT facilitation be applied and understood in practice?

Despite the growing popularity of DT, literature with a specific focus on DT facilitation is sparse (Minder & Lassen, 2018; Mosely et al., 2018; Wróbel 2020). Therefore, we draw on the group facilitation literature, which offers empirical insights and concepts that enable a better understanding of how facilitation develops dynamically in a processual and relational way (Schwartz, 2002). Because the group facilitation literature has limited utility in conceptualizing the specificity of DT facilitation, we performed an empirical study in which we adopted a qualitative, exploratory approach to data collection, thereby uncovering how DT facilitation is practiced (Eisenhardt, 1989; Eisenhardt & Graebner, 2007).

Our contribution to DT theory is twofold. First, we advance the work of Carlgren et al. (2016a) by extending understandings of how DT can be translated and conceptualized in different settings. Specifically, we empirically demonstrate how facilitators' diverse interpretations of DT result in different DT practices during innovation projects. We identify challenges related to DT facilitation and point to an approach that focuses on the use of DT, in line with recent work by Carlgren et al. (2016b) and Coco et al. (2020), who oppose normative conceptualizations commonly presented in the literature (Brown, 2009; Lockwood, 2009; Martin, 2009). Second, we respond to recent calls for more research on DT facilitation activities (Minder & Lassen, 2018; Mosely et al., 2018). We propose a taxonomy of DT facilitation that can be visualized as a set of four continuums anchored by polar opposite characteristics that can guide researchers and practitioners toward uncovering different interpretations of and contextual issues associated with DT facilitation.

2. Theoretical Background

2.1. DT facilitation

As the body of DT research has grown, it has attracted criticism, mainly from the design community (Kimbell, 2011; Tonkinwise, 2011), that some researchers preoccupied with the conceptualization of DT favor particular interpretations. However, in line with Johansson-Sköldberg and Woodilla (2013), we do not consider these different discourses to be competing. Instead, DT theories can benefit from being developed in parallel. When scholars are preoccupied with defining DT concepts in "the right way," they assume a relatively normative position that draws attention away from the actual practice and process of practicing DT in diverse contexts (Carlgren et al., 2016b). Understanding how DT is applied and understood in practice is

just as important as its ongoing conceptualization. Empirical studies produce essential knowledge about DT dynamics by showing how different interpretations lead to different ways of running projects. This emphasis also contributes to a more solid theoretical foundation, and thus merits more attention.

DT requires a set of skills that are not common in many organizations (Carlgren et al., 2016b). A design thinker is a person who actively employs the DT approach; according to Brown (2008), this requires excelling at empathy, integrative thinking, optimism, experimentation, and collaboration. Dell’Era and Landoni (2014) expanded this list to include the capacity to observe, visualize, and use physical artifacts to explore, define, and communicate different ideas. Others have pointed out that, in general, it is challenging for people from non-design backgrounds to incorporate competencies concerning user focus, iteration, and experimentation, the use of visual methods, or the application of abductive “what-if” thinking to problem-solving activity (Carlgren et al., 2016b; Dan-Ling, 2018; Micheli et al., 2018).

Carlgren et al. (2016a) identified seven types of DT implementation challenges: DT often does not fit with existing processes and structures; resulting ideas and concepts are challenging to implement; the value of DT is difficult to prove; DT principles/mindsets clash with organizational cultures; existing power dynamics are threatened; skills are hard to acquire; and communication styles differ. In a recent article, Coco et al. (2020), identified three main struggles and tensions for new adopters of the DT process: destabilization (conflict between demand for control and disruption), indecision (conflict between deductively solving problems and inductively generating ideas), and abstraction (conflicting demands for facts vs. new ideas). They argued that these struggles and tensions are not only an inherent part of every DT project, but a desirable part of the journey. These new skills and practices are essential in DT; thus, DT facilitation is essential. The DT facilitator plays a key role in helping organizations navigate struggles and tensions by serving as a mediator of DT knowledge.

Knowledge on how to facilitate DT, especially in groups with no design or DT expertise, is insufficient in the DT literature. Mosely et al. (2018) called for more research on facilitator skills and the success of facilitation activities in DT projects. Investigating different levels of design expertise defined by Dorst (2011), they pinpointed particular challenges to facilitation associated with participants’ misunderstandings of DT concepts. They concluded that facilitating DT for non-designers requires a facilitator to build a shared understanding of the DT approach and a common vocabulary among participants (Mosely et al., 2018). However, this may be problematic, as many different approaches to DT can be taken. For example, Leifer and Steinert (2011) pointed to the importance of physical space in DT and language used in the process (Cruickshank & Evans, 2012), whereas Simeone et al. (2017) found that sketches, artifacts, visual representations, or prototypes can serve as tools to translate knowledge into formats easily understood by

different stakeholders. Importantly, using such tools may be challenging for people who have not worked with them before.

As scholars continue to identify more challenges associated with DT practices, it is becoming increasingly important to understand DT facilitation. To that end, we draw on insights from the group facilitation literature, which offers a dynamic understanding of facilitation as processual and relational. In this way, the literature on group facilitation can help qualify the DT literature. In the following section, we outline existing approaches to group facilitation that constitute the foundation for our empirical research.

2.2. Group facilitation

Group facilitation is a central process in many organizations (Steward, 2006). Despite the importance of group work, academic research on factors associated with competent and efficient DT facilitation is scarce (Mejas, 2007; Steward, 2006) and descriptions of facilitators seem rather vague and ambiguous. Bens (2012) defined a facilitator as “one who contributes structure and process to interactions, so groups can function effectively and make high-quality decisions” (p. 5).

In addition to describing different roles and competencies of facilitators (Jones & Bearley, 2001; Krammer et al., 2001; McFadzean, 2002; Schwarz, 2002), some scholars have focused on the process view of facilitation (Wardale, 2013). Schwarz stated that the facilitator’s main task is to help the group increase its effectiveness by improving its process and structure. Process here refers to how a group works together, and structure refers to stable recurring group processes, such as group membership or group roles (Schwarz, 2005). Most authors propose three stages: pre-session planning, running the group session, and producing a post-session report (McFadzean, 2002).

Schwarz (2005) distinguished between two types of facilitation processes: basic and developmental. In basic facilitation, a facilitator helps a group solve a substantive problem by lending the group their process skills. Although the group may solve the issue, members do not learn how to improve processes without a facilitator. In developmental facilitation, a facilitator helps group members improve processes by learning to reflect on and change their thinking and behavior to solve substantive problems more effectively and later do so without assistance from the facilitator (Schwarz, 2005).

Another essential aspect of facilitation is process leadership: Who should take control of the facilitation process (i.e., a facilitator or the group), and who, as the process develops, should take a more decisive position? In a recent article, Wrobel et al. (2020) pointed out that facilitators often are external third parties with the capacity to “remain ‘neutral’ toward the team, its members, and their ideas (in comparison to, for example, a team leader)” (p. 424). The authors explored the proactive neutrality framework, which can help facilitators maintain a neutral position during the facilitation process (Wrobel et al., 2020). Some scholars

have emphasized that facilitation differs from teaching in that expert knowledge does not emanate from the facilitator to the learner; rather, facilitation involves relationship-building to understand the interests and needs of the learner/client/community (Manley & Titchen, 2017), which implies that leadership over the process must be shared between the facilitator and the group. Relationship-building is, hence, fundamental, especially in projects involving multiple-stakeholder collaboration, where partners have diverse starting positions and individual frames of reference that may surface tensions.

2.3. Guiding points from two streams of literature: DT and group facilitation

In our investigation of DT facilitation, the DT and group facilitation literatures helped us identify some initial guiding points for our empirical research. Inspired by the DT literature, we identified two areas of importance. The first area was DT definitions/understandings. As diverse approaches to DT exist, it is important to understand which approaches DT facilitators take to DT. Thus, the “framing of the DT understanding” describes a facilitator’s approach to, and interpretation of, DT. The second area concerns the DT facilitator’s approach to problem-solving. Facilitators might be focused on the product/service to be developed or be more inclined to delve into different facets of the focal problem to ensure that the problem is well understood. Drawing on the group facilitation literature, we added two more areas: the facilitation process and process leadership. Some researchers pointed to challenges with balancing neutrality and power over the facilitation process between the facilitator and a group (especially in developmental facilitation). These four areas emerged from the literature as guiding points in our empirical work, as described below.

3. Methodology and research setting

3.1 Research design and purposeful case sampling

To research how DT facilitation is applied and understood in practice, we initially designed a qualitative and exploratory case study (Yin, 2003) of four different one-year innovation projects to enable deep investigation of a sparsely researched phenomenon (Ridder, 2017). This research design was appropriate for an examination of DT informed by situational and contextual translations of facilitation and design practices (Carlgren et al., 2016b). We observed considerable differences in how some of the projects were facilitated, and subsequently focused on the two most polar of the four cases (Eisenhardt & Graebner, 2007). We purposefully sampled these two cases to support our insights regarding rarely observable phenomena on several dimensions (DT understanding, focus, process, and process leadership) as derived from the DT and group facilitation literature. As such, the two cases were particularly information rich, thereby enabling us to observe contrasting patterns between them (Eisenhardt, 1989). By combining our provisional list of theoretical dimensions (Miles & Huberman, 1994) with an “extreme case” selection strategy (Eisenhardt,

1989; Eisenhardt & Graebner, 2007), we were able to unfold two cases with unique qualities. Eisenhardt (1989) stated that such a research design unfolds the phenomenon in question in a transparently observable way and forces researchers to look for differences between cases that seem to be similar, thereby enabling simplistic frameworks to be broken down. This process enabled us to analyze facilitators' diverse DT practices during two innovation projects.

3.2. Case description

Both innovation projects involved collaboration between public organizations and private firms in public-private innovation (PPI) partnerships as part of a large EU-funded program from 2016 to 2019. Project teams consisted of representatives from three to four private companies and three municipalities. Each innovation project group had to develop a new product or service for the public sector that would solve a complex problem predefined by the three municipalities. Several conditions were similar in the projects. They were part of the same overall EU program; they had similar initial design briefs and process plans, timelines, and financial conditions; and they involved collaboration with the same three municipalities. In the design brief, the deliverables and scope of the projects, including any products or works (function and aesthetics), timelines, and budgets, were outlined. A core difference was that different facilitators from different design consultancies facilitated the innovation projects for teams with no DT experience. The DT facilitators had different educational and professional backgrounds (business, interaction design, and product design) and different working practices and experiences with DT implementation.

The selection of the design consultancies was based on a formal tendering process chosen by evaluating their responses to the design brief. A core selection criterion was that the design consultancy facilitate the process based on DT. The brief did not explicitly define how DT should be understood, and it was up to the individual consultancies to define it. Hence, we followed Carlgren et al.'s (2016b) methodology and logic of selecting cases by studying organizations that "claimed" to use DT and refrained from making judgments regarding whether these claims were true. Each innovation project was assigned one primary facilitator from the design consultancy. Additional facilitators with specific skills (e.g., visual thinking) were involved in different phases of the projects. None of the group members from the companies and municipalities taking part in the process had previously worked together, nor did they have any experience with DT.

3.3 Data collection

We collected empirical data by engaging in participant observation of eight DT workshops, performing a series of qualitative interviews, and gathering artifacts used in the workshops. Each of the two chosen extreme case innovation projects involved four facilitated workshops, eight in all:

- Introduction (2 hours)
- Problem definition (6 hours)
- Research insights and prototyping (6 hours)
- Testing of the prototype (6 hours)

Two of the researchers participated in all eight workshops. During the workshops, the researchers performed participant observations. They made notes focusing on the facilitation activity: who steers the discussion, who makes decisions, how is the work structured, etc. After each workshop, the researchers compared observations and discussed what happened during the workshop, the observed behaviors, and what meanings could be assigned to certain behaviors or events.

We conducted 10 in-depth, semi-structured interviews lasting one to two hours each. All interviews were recorded and transcribed. The informants were all directly or indirectly involved in the projects as primary and supporting facilitators and project managers from the municipalities and other public organizations related to the projects. They helped us develop an understanding of the specificities and challenges of DT facilitation by answering questions related to the definition and interpretation of DT, benefits and challenges connected with DT, facilitation activities, the facilitator’s role, the group’s role, process leadership, experiences and reflections related to the facilitated projects, challenges, and other issues. We adjusted the questions to the specific respondents. Information about the respondents beyond their roles and institutional affiliations has been omitted and anonymized to ensure confidentiality. We also collected and analyzed artifacts from each workshop (posters, prototypes, presentations, and visual materials, etc.). Table 1 provides more details about our data.

Table 1. Data

Project	Participant observation	Interviews	Artifacts
Project A	Observation notes from 4 workshops	1 project manager 1 main facilitator 3 additional facilitators who were engaged in different phases of the project	PowerPoint presentations, Excel spreadsheet, flipcharts, user scenarios, persona, user journey, Business Model Canvas, visualization techniques, prototypes
Project B	Observation notes from 4 workshops	1 project manager 1 main facilitator 3 additional facilitators who were engaged in different phases of the project	PowerPoint presentations, case study, flipcharts, persona, user journey, visualization techniques, visual mapping, prototypes

3.4 Data analysis

We employed an abductive approach to data analysis. We continuously compared theory and data and iterated towards a theoretical understanding with a tight fit to the data (Eisenhardt, 1989). Comparing

emerging empirical themes with existing literature also sensitized us to novel themes not yet debated in the literature (Eisenhardt, 1989; Edmondson & McManus, 2007).

The number and scope of the final parameters changed over time. The overall inspiration for this study was initiated during the first workshop, where the two researchers engaged in participant observation noticed substantial differences in the facilitators' work across all four cases in terms of how they engaged with the group, structured the work, led the workshops, etc. After that first set of workshops, we began to categorize the facilitators' work using concepts from the DT and group facilitation literatures. Our review of these literatures enabled us to define the initial scope of areas for our empirical work while revealing a lack of focus on DT facilitation in the DT literature.

As we began to conduct interviews and code our data, we compiled a preliminary list of first-order codes. Using NVivo software, we used short text fragments to summarize different aspects of the facilitators' work. Subsequently, we coded the preliminary list based on emerging parameters that distinguished the two approaches. Initially, we identified six parameters: (a) aim, (b) vocabulary, (c) process, (d) problem, (e) boundary objects used, and (f) attitude towards time. That list changed over time, as our empirical work and insights from the literature helped us identify overlapping areas and fine-tune our final list, which includes four parameters of DT facilitation—DT understanding, focus, process, and process leadership—and eight subcategories.

4. Findings: DT facilitation parameters

Despite similar contexts, project facilitation was performed in very different ways. In the following sections, we present four parameters that characterize these fundamental differences.

4.1 DT understanding: tools vs. mindset

DT understanding describes a facilitator's approach to, and interpretation of, DT. In project A, DT was described as a set of methods and tools in the form of a step-by-step process: "So, step one: user worldview. Step two: definition of the problem. Step three: verify what we found out. Then it's step four, some kind of prototype development" (Facilitator A). In project B, however, DT was perceived as an understanding and a way of thinking based on user-orientation, and reiteration:

Design thinking for me is just basically ... going through a set of questions or focus areas like understanding your target, understanding the problems, and elaborating on them, and then reframing and then coming up with some prototypes and testing. I don't understand DT as a process. ... Basically, DT for me is just that you think carefully about what you do, and you place the people for whom you're designing in the center of everything you do. So for me, it's

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basically not focusing on the product, but on people's needs. (Facilitator B).

This difference in facilitators' understandings of the essence of DT had consequences for different aspects of the projects. One example was the approach to visualization. In project A, the facilitator was the main creative force who prepared templates for the persona and customer journey, and an external designer made the drawings. In project B, all participants were engaged in creating the visual materials. The importance of visualization was demonstrated by an exercise where the participants were asked to imagine a process of preparing a simple dish and then to draw the process. The exercise challenged the participants who were not familiar with using visual tools, which created a deeper understanding of how visual tools and methods can create better communication between team members. The group responsible for project A had more difficulty embracing visual tools. In project A, the focus was on the tool itself, whereas in project B, the focus was on understanding the mindset behind the tool (i.e., visualization techniques). Therefore, for the first parameter, DT understanding, we find two extremes: DT as a set of tools/methods vs. DT as a mindset.

4.2 Focus: solution vs. problem

The second parameter is focus. Although the overall goal for both projects was to develop a working prototype of a solution, the two facilitators took very different approaches. In project A, the facilitator focused on creating the prototype, whereas in case B, the facilitator focused on the problem to be solved. This striking difference was evident in the first initial workshop. In project A, the facilitator focused on the prototype as the project outcome. The facilitator described this as a practice associated with the facilitator role:

I often ask when I do a workshop: "Now we simply imagine that we have put ourselves in a time machine. We have flown forward. We finished the project. We finished the workshop. Out there now, what are you holding in your hand?" Because then I have an idea of what's inside their head compared to what they think they've got as a result. Then I have to help them get there. (Facilitator A)

In project B, the discussion in the introductory workshop and for a long time after that focused mainly on which problem the group should solve; the outcome/prototype was secondary: "I would like us all to identify the most important problem we need to solve. What is the most important thing we can do for them and their relatives? We cannot proceed before we have prioritized this" (Facilitator B). We made similar observations later in the project, and it seemed that the two foci (i.e., solution and problem) drove the facilitators' actions.

4.3 Process: planned vs. emergent

The third parameter is the facilitator's approach to process planning. In both cases, major phases were predefined by the general EU project description, but the approaches to execution varied between the facilitators. In project A, the facilitator was well prepared and had created an Excel spreadsheet outlining a plan for all activities, tools, and deliverables related to the project. The plan was presented to the group, and the facilitator argued for the relevance of each step and method, insisting on following the steps. Later, the facilitator reflected: "You have to be a bit on meta-plan for the whole project all the time" (Facilitator A). This linked with the previous parameter, focus on the outcome, as the meta-plan was created to achieve the end deliverable of the project, a working prototype.

In case B, the approach was different from the first meeting. The facilitator had no predefined plan. Instead of presenting a predefined Excel spreadsheet, the facilitator suggested possible pathways with an aim of building consensus and co-developing the process with the group. The facilitator had prepared many materials (case studies, PowerPoint presentations, tools) which were used very flexibly during the initial workshop. The facilitator proposed a design sprint but left the decision to the group, and the suggested approach was not applied. Later, the facilitator reflected on it: "You must have a plan so you can prepare yourself beforehand. But then you need to throw it in a garbage can and start again from scratch with the people you work with" (Facilitator B). Overall, we observed two very different approaches: planned vs. emergent.

4.4 Leadership: individual vs. shared

We also observed considerable differences with regard to the last parameter, process leadership. Facilitator A led the process and steered all activities, whereas Facilitator B shared leadership responsibilities with the group via co-facilitation. For example, in the user-research phase both groups conducted in-depth user interviews. In project A, the facilitator conducted all the interviews based on themes and topics defined together with the group, where team members were conservators of the interviewing process. In project B, the facilitator assisted in defining the scope of the interviews, but project team members actually carried them out. Facilitator A faced a challenge with process leadership:

[An important aspect is] expectation reconciliation with the customer—what it is that they want. To what extent do they want to be facilitated? Sometimes people say one thing and then it turns out that it is in fact something else. They say, "Well, we want to be facilitated all the way," and then you find out along the way that this was not the case ... I think the challenge for me as a facilitator, is ... to what degree should I help and support, and when is it that I just have to let go of it? (Facilitator A)

The above quote is relevant for understanding Facilitator A’s approach, which we can describe as a either/or approach: either I facilitate, or I delegate facilitation responsibilities to you.

Taking the user-research example in project B, the facilitator helped to define areas of inquiry for the interviews and provided guidance regarding how to conduct them, but the team members actually conducted the interviews, and this experience later became the foundation for a developmental workshop. Facilitator B explained:

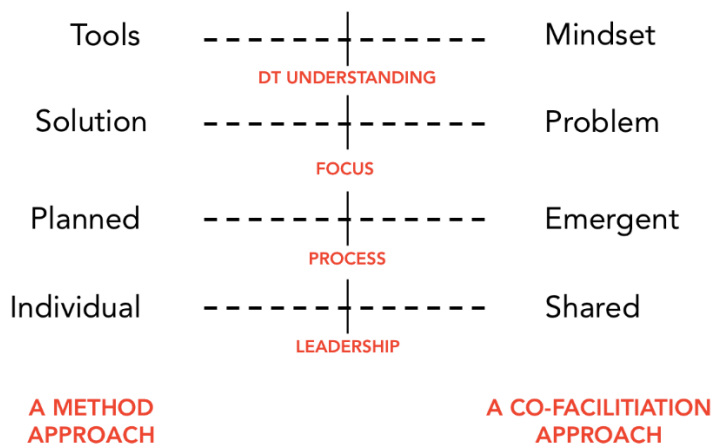
You need to engage people to co-create the track, the path we take together. Otherwise, people will just say, “You made a plan, and it doesn’t work,” and just blame you for it. So, it’s about engaging them and making them take co-responsibility for what you’re doing. (Facilitator B).

Thus, we identified two approaches to process leadership: individual vs. shared.

4.5 Two approaches to DT facilitation

The facilitators’ approaches to DT played a crucial role in shaping project dynamics. Facilitator A was focused on tools and methods and the desired solution. The facilitator’s main focus was to prepare and follow a plan based on a single process leader. We label this a method approach. Facilitator B adopted a different approach that involved co-creative activities and leadership, focused on the problem instead of the solution, and engaged the group in co-creating the process. We call this a co-facilitation approach. In Figure 1, we visually depict a taxonomy of the two approaches to DT facilitation to help researchers understand which parameters, presented as continuums, are central to research aimed at advancing DT scholarship.

Figure 1. Taxonomy with two approaches to DT facilitation



4.6 Challenges experienced in the two approaches

Although we have described the two extremes of each parameter, we want to point out that each parameter is a continuum, and that a facilitator's approach can change, either voluntarily (e.g., adjusting to the group's development), or involuntarily (e.g., by group pressure, which occurred in the case of Facilitator A). As it turns out, both cases faced challenges that reveal the drawbacks of the two approaches to DT.

In project A, the facilitator's rigorous approach was met with a growing dissatisfaction from the group. As the project progressed, the facilitator failed to adjust the approach to the group's ongoing development, which created tensions among team members. At the beginning of the third workshop, representatives of the group stood up and asked the facilitator to sit down; they had prepared a different agenda, and refused to follow the facilitator's plan. After the workshop, the group gained more influence over the process, and the facilitator adjusted the facilitation approach in the area of process and leadership, moving toward an emergent process and shared leadership. This aligns with previous findings on group development (McFadzean, 2002) and developmental facilitation (Schwarz, 2002, 2005).

In project B, the group faced a different challenge. In the first phase, the group had to select the target group for the solution. This phase was time-consuming because the group had difficulty selecting an aspect of the problem to solve, which may indicate that the group was not ready for an shared facilitation style. The group consisted of people that had never worked with each other before; hence, co-creation was challenging. Because the group spent most of their time identifying a target group for the solution, they were not able to test and develop the solution to a point where municipalities and companies could perceive it as workable. The participants perceived the solution to be too broad, not providing the added value necessary for the target group to be willing to adopt it. Jones and Bearley (2001) described similar situations where groups faced with challenging decisions seek guidance from facilitators. Although Facilitator B adhered to a co-facilitation approach throughout the process, the group actually needed a facilitator who would be more actively involved in content selection and decision-making, especially at the beginning of the process (Schwarz, 2002).

Challenges identified in both cases led us to conclude that every approach has certain strengths and weaknesses and must take into account the group's development and expectations. In project A (method approach), the group's dissatisfaction with the way the process was facilitated resulted in rebellion, and forced the facilitator to shift towards co-facilitation. In project B, the group adopted an approach that did not provide sufficient structure, and thus experienced severe challenges when attempting to converge their ideas. Participants in project B would have benefited from a more authoritative facilitator who could have helped the group make critical decisions at the beginning of the project to ensure progress. This emphasizes the importance of adjusting DT facilitation practices to the context of a project (Carlgren et al., 2016b).

5. Discussion and conclusion

In this study, we aimed to answer the research question of how DT facilitation can be applied and understood in practice. Our findings provide insights into facilitators' different DT practices during innovation projects and make two critical theoretical contributions. First, our findings contribute rich empirical data to the conceptual debate around DT to strengthen the iterative development of DT research. Second, our findings provide an enriched understanding of how facilitators practice DT.

Despite significant academic interest and debate in recent years, empirical data that could provide a rich and diversified understanding of how DT is practiced are scarce. Most scholars have been preoccupied with defining and conceptualizing the design area (Johansson-Sköldberg et al., 2013; Elsbach & Stigliani, 2018), drawing attention away from actual DT practices and processes (Carlgren et al., 2016a, 2016b). By connecting empirical data regarding how DT is applied in practice with theoretical understandings of DT, essential knowledge can be created to improve conceptual clarity and avoid producing a collection of "ad hoc, atheoretical and non-cumulative studies" (Goodman et al., 1983, p. 164). Thus, empirical data regarding how DT is practiced is essential to advance a constructive debate and develop the DT literature. To that end, it is useful to adopt Carlgren et al.'s (2016b) methodology and logic of studying projects or organizations in which it is claimed that DT is used, and refraining from making judgments about whether these claims are correct or not. Doing so makes it possible to explore how DT facilitators practice DT differently, enabling insights into diverse interpretations and operationalizations of the DT concept. Empirical studies are critical, even though DT might be perceived to be a difficult concept to study due to the lack of coherence between what DT is in academic and practical terms (Carlgren et al., 2016b). We see Carlgren et al.'s (2016b) methodology as valuable for initiating critical dialogues between theoretical frameworks and empirical work (Alvesson & Kärreman, 2007).

Focusing on how DT is practiced influences the understanding of DT (Minder & Lassen, 2018; Mosely et al. 2018). By exploring how different facilitators interpret DT when practicing DT facilitation, we have shown how facilitators influence non-design audiences and innovation projects. Our findings reveal new theoretical implications that must be addressed in future research to support the advancement of the design research field. Our findings reveal how DT facilitation is practiced in varied ways. Based on existing literature and our empirical study, we have developed a taxonomy of DT facilitation that includes four parameters, which we present as continuums. We believe this taxonomy will enable researchers to uncover new facets of DT facilitation, as it emphasizes a range of options for understanding and interpreting DT, thereby avoiding polarization.

5.1. Managerial implications

Our findings also have three managerial implications. First, by highlighting different aspects of DT facilitation, our taxonomy may help managers write more qualified design briefs and select the most effective DT facilitators for particular projects. Second, managers must be aware of how different conceptualizations of DT can be interpreted, as our study shows that different interpretations can affect how projects are facilitated and thus might influence the process and related outcomes. Third, the taxonomy can be used by facilitators as a self-reflection framework. By reflecting on various ways to facilitate projects, the taxonomy provides inspiration for how facilitators may shift their positions over time to adapt to different contexts or different types of audiences.

5.2. Limitations and future research

Two limitations are critical to mention. First, we concentrated on how DT facilitation is practiced during innovation projects by selecting a purposeful sample of two extreme cases and several dimensions (DT understanding, focus, process, and process leadership) derived from the DT and group facilitation literatures. Extreme cases based on selected dimensions may limit insights into the more typical/usual forms of DT facilitation, and therefore can be argued to lack empirical generalizability. Choosing extreme cases from both ends of a spectrum as we did helps avoid some selection bias, but more research is needed to further develop our knowledge of different approaches to DT facilitation and test the applicability of the proposed taxonomy dimensions.

Second, more research is necessary to better understand how DT can be translated and conceptualized in different settings. Additional research is needed to uncover how DT is actually practiced and how DT processes develop differently in diverse contexts such as intra- or inter-organizational settings (Carlgren et al., 2016b). Insights into how DT is practiced might yield essential knowledge on DT dynamics by showing how different interpretations lead to different ways of running projects, and revealing how learning takes place as projects and audience understandings develop.

6. References

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