

Utrecht University

Masterthesis Sociology

Contemporary Social Problems

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“At the heart of a
learning organization
is a shift of mind.”

– Senge (1990)

Learning by design thinking in the public sector

The role of empathic experience and physical artefacts
for individual and organizational learning

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abstract

Today's society faces many “wicked” – highly complex – problems, the solutions of which are often considered to be the responsibility of the public sector (Rittel & Webber 1973; Tromp & Hekkert, 2019). **Design thinking is argued to play a substantial role in the arrival at valuable solutions** (Buchanan, 1992), **and is most beneficial when it becomes integrated into the organization** (Dumas & Mintzberg, 1991). Most research into this subject has been carried out within commercial organizations (Brown, 2008; Liedtka & Ogilvie, 2011; Matthews & Wrigley, 2017). This multiple-case study provides insight into the experiences of public sector officials, and aims to understand what officials individually learn from the design thinking process and how this transforms into organizational learning. Furthermore, it examines the conditions under which the process is successful. It focusses on two specific elements of the design thinking process; empathic experience and the use of physical artefacts. These elements are present at multiple stages of every design thinking process (Elsbach & Stigliani, 2018). Therefore, they allow comparison between the experiences of the officials, without describing the differences between the multiple processes. A qualitative research design was devised and fifteen different officials were interviewed. The empirical findings of this study show that empathic experience is an important factor for both individual learning and organizational learning. Physical artefacts are experienced as less relevant for individual learning; officials only reflected on them in connection with empathic experience. However, physical artefacts appear to be essential for organizational learning because they provide material to engage with and reflect upon within the organization. Physical artefacts seem to be supportive of the empathic experience. Direct benefits from the design thinking process and ownership of this new way of thinking are two conditions that are paramount to the successful implementation of design thinking in the public sector.

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Enjoy reading!

introduction

In today's society, there are many complex social problems that require meaningful and long-lasting solutions. These include global climate change, economic gaps between and within countries, inequality on several fronts, healthcare inefficiencies and many more (Tromp & Hekkert, 2019). Almost all of these complex social problems are tied to the dynamics of numerous societal systems. These systems involve many different actors with conflicting interests, but which are still interdependent on one another (Klijn & Koppenjan, 2016). These problems are defined by a high degree of “wickedness” (Buchanan, 1992; Rittel & Webber, 1973); problems that continuously change over time and respond to what happens around them, making them dynamic and unpredictable. Many people and organizations are exposed to these problems, however there is no clear ownership of them and the interdependency between actors and the complexity of these problems makes it difficult for them to be resolved by a single party.

Solving problems of this complexity is often considered to be the responsibility of organizations in the public sector. The public sector often has the means to set the boundaries of desired behavior with rules and regulations, but it cannot always stimulate the specific desired course of action (Klijn & Koppenjan, 2016; Tromp & Hekkert, 2019). For instance, it can change policies, advise and subsidize to stimulate people to change their garden tiles for grass or soil in order to better regulate rainwater, but it seems rather difficult to actually make people change their behavior (Rijnja, Seydel, & Zuure, 2009). The way the public sector works is not that easy to adjust. These organizations are often built on the ideal-type of bureaucratic principles, such as clear hierarchical relations, impartial judgement and decisions and the use of formal rules and regulations. These rational and bureaucratic principles are often regarded as dysfunctional because they tend to be inefficient and indifferent to moral ends.

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However, these principles enable much esteemed public values such as impartiality, fairness and equality (Gay, 2005), which gives public sector organizations their legitimacy and effectively separates the administration of public life from the abusive exercise of power. Nevertheless, reducing the size, inflexibility and anonymity of bureaucratic organizations has many advantages (Watson, 2017). Because for lasting and meaningful change to happen, the public sector, commercial organizations and the general public need to work together and collectively change their course of action (Tromp & Hekkert, 2019).

Buchanan (1992) argues that design thinking is the key to arrive at substantial solutions for wicked problems, since designers work within the context of envisioning and planning solutions that do not yet exist. The insight provided by perspectives and methods from the world of design can be a valuable addition to organizations, which is increasingly acknowledged (Buchanan, 1992; Dorst, 2011; Elsbach & Stigliani, 2018; Tromp & Hekkert, 2019). The demand for design thinking often arises when a problem becomes too complex and several unsuccessful attempts have already been made to find a solution (Schaminée, 2018). Using this method, solutions to complex problems within the public sector are developed with various involved actors (Dorst, 2011). Two important aspects of this method are empathic experience and the use of physical artefacts. Empathic research qualitatively maps out which emotions and themes are of value to the involved groups. It also lays the foundation for the other steps of design thinking: redefining the current perspective and creating insights in which possible solutions can arise. Another important instrument of design thinking is the use of physical artefacts such as mind-maps, sketches and prototypes, which help to create shared dialogue and narrative (Elsbach & Ravasi, 2012). Amongst other things, possible solutions are designed by different co-creation sessions between the various involved actors and the use of visualization tools (Schaminée, 2018).

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However, solving the most complex systems in today's society requires more than a well-designed intervention for a singular problem. In order to make a long-term impact there is a need for systematic change within the public sector. Organizations must be able to embrace innovation and actively build new structures that are better able to anticipate complex problems (Conway, Masters & Thorold 2017). Dumas and Mintzberg (1991) even argue that design thinking comes into its own when it becomes part of the organizational culture.

1.1 Problem statement and research questions

A fair amount is known about design thinking methodologies and tools in practice, and as an organizational phenomenon. However, most research is more anecdotal than systematic and there are still many gaps in the literature. Much of the research has been focussed on commercial organizations as opposed to public sector organizations (Brown, 2008; Liedtka & Ogilvie, 2011; Matthews & Wrigley, 2017), despite the latter having to deal with equally or even more complex issues. This paper aims to understand what public sector officials learn from the design thinking process and how this transforms to organizational learning within the public sector. More specifically, this research will look into the role of empathic experience and the use of physical artefacts. This will be achieved by interviewing public sector officials about their experience with an actual design thinking project. The main question of this paper is: **Which insights from a design thinking process do public sector officials experience as relevant to their own work and their organization?**

As previously stated, public sector organizations are often bureaucratic for reasons such as legitimacy, however these bureaucratic structures make it difficult for them to cope with the complex and rapidly changing problems of today's society (Mintrom & Luetjens, 2016). Knowing what conditions are important for a design thinking process can reveal why a project is regarded as

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successful and whether it can have a lasting impact. This paper looks to uncover which conditions make design thinking more likely to be fruitful and examines the following question: **Within the context of the public sector, which conditions do officials experience as relevant to the success and durability of a design thinking process within their organization?**

Finally, advice is offered on the contribution of design thinking to public sector organizations, derived from the research conducted. This advice is formulated based on the following question: **How can the design thinking process be improved to become more compatible with the public sector so that it can provide beneficial insights and stimulate change within its organizations?**

theoretical framework

Design thinking is used to tackle complex and often structural societal problems. These problems occur on a systemic or macro level. However, design thinking is a process that takes place on an individual or micro level, based on Coleman's (1994) diagram of social theory as shown in figure 1. The current chapter will focus on what design thinking is and how it works. It will discuss existing theories about the mechanisms at an individual level, as well as the transformative mechanisms that exist at the individual level through to the systemic level. The final part of this chapter will focus on a framework that incorporates these mechanisms with the role and experience of the officials working in public organizations.

2.1 What is design thinking?

Without delving too deep into the history and lexical semantics of the term design thinking, the following paragraphs will outline the most important scientific insights of the practice. Schön (1983) was one of the first academics to analyze the “science of design” as a practice. According to his research, designers are well able to understand and solve problems in uncertain and unstable situations due to the intuitive and artistic nature of the design process. Building on this argument, the benefits of the design process have been widely discussed in academic literature. Problems that are typical for the field of design are often complex because they are poorly structured, vague, ambiguous and have a myriad of solutions. The designer's task is to add structure to the complexity and bring order to chaos

(Buchanan, 1992; Dorst, 2011; Goldschmidt, 1997; Kolko, 2010).

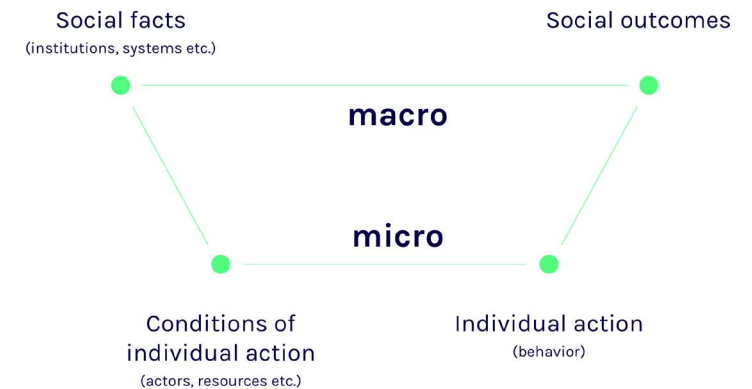


Figure 1. a general model of Coleman's diagram (Coleman, 1994)

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The term design thinking is used for several similar methods, which have a shared understanding of the design thinking process, despite the fact that these methods use differing terminology. The similarities between these models can be found in three different phases (Liedtka 2014). The first phase is about discovering the needs of the target audience often without any agenda, which always includes empathic research such as in-depth interviews and observations. This step has the unique ability to detect unspoken needs. This is in contrast to a quantitative way of conducting research in which data is collected and analyzed. The problem with quantitative research is that the researchers are anchored in pre-articulated needs that reflect the data. This makes it difficult to identify the needs that people have not expressed, as data is interpreted through pre-existing lenses (Liedtka, 2014). The generation of new ideas, i.e. creating new thinking, is the second phase and includes sense-making and ideation tools to support brainstorming and concept development. Examples of these tools are mind-mapping and cluster analysis. The third phase concerns itself with experimentation and focuses on prototyping¹ and testing. It is important to note that each design thinking process is unique and that some methods are more thorough than others². Depending on the method, designer, client, project size and budget, a process could take one afternoon or several months. Despite these differences, there is an overall agreement that design thinking is a specific working method, consisting of different tools and techniques, with the aim of creating dynamic solutions that offer long-term perspective. Under the term design thinking lies a framework that brings together analytical and creative reasoning through a process that focuses on tools and techniques (Liedtka, 2014).

To better understand the connection between design thinking and public sector organizational culture, this paper makes use of the framework of Elsbach and Stigliani (2018). Their meta-analysis provides a number of relevant starting points for this research. They distinguish between two elements of the design thinking process. Firstly, the experience of empathy and secondly physical

¹ A prototype is an early version of a product, and it is meant to reflect and evaluate by testing it with intended users. Prototypes play an important role to represent abstract ideas with a minimal form. Furthermore they adhere to the creative cognitive process by making associations between imaginary concepts tangible (Nonaka, 1994).

² It is important to mention that more meticulous design thinking processes start with an in-depth research into the systematic side of the apparent problem. This discloses important contextual and historical sides of the problem and gives insight into what makes the problem difficult to solve (Dorst, 2015). Profoundly understanding the problem is especially important within the context of the public sector, and can be found in the Frame Innovation method; a thorough design thinking method developed and described by Dorst (2015).

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artefacts such as mind-maps, sketches and prototypes. Physical artefacts range from being a conversation starter during the process to a final outcome. Both elements are present throughout the entire design thinking process; in each of the previously described phases and often in the outcome. Therefore, the concepts of empathic experience and physical artefacts make it easier to compare the experiences of the involved officials, without the need to analyze differences in the design thinking process. Since they surpass the details and differences of each design thinking process, these concepts provide a good framework to observe and compare the learning curve of public sector officials. These concepts contribute to uncovering underlying values, standards and assumptions within an organization.

2.2 From design thinking to individual learning

In order to better understand structural change in public organizations through design thinking, first we must understand what happens on an individual level; the relationship between a design thinking process and individual learning.

If we look at the design thinking process as an activity, we see that it brings together different social groups. Burt (1992) refers to the figurative space between social groups as structural holes. Design thinking enables officials to come in contact with their target group – residents of a particular neighborhood, at-risk families, youths or the unemployed etc. – by means of different co-creation tools and exercises, thus having the ability to bridge knowledge and insights between different groups. The exchange of experience and knowledge provides access to diverse and often contradictory information and interpretations. To understand what this process does for an individual and what mechanisms are at play here, we must approach design thinking as a thought process. Liedtka (2014) describes design thinking as a process in which cognitive bias is reduced.

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Common human cognitive deficiencies include projecting one's own worldview onto others, ignoring disconfirming data and being overconfident in one's own predictions. Liedtka (2014) argues that different types of cognitive prejudice can be at least partially eliminated by different phases of the design thinking process. For instance, if the developing party suffers from egocentric empathy bias – the tendency to project your own thoughts, values and preferences onto others – they will fail to create a valuable solution for their target group. Empathic research, in which understanding and adopting the views of others is central, has the means to counter this projection of personal preferences onto others. This can be described as developing perspective skills. Bridging knowledge and insights between different groups contributes to the enrichment of individual skills but also social capital (Burt, 1992). Thus it follows that design thinking has the potential to contribute to the development of insights and innovative ideas.

As mentioned before, design thinking is often used to deal with a complex problem, so this way of working can seem like a self-contained project, meaning that the methodology does not have value beyond the borders of the project. However, Schön (1983) suggests that the designer's profession, and thereby practice is inherently reflective. In his paradigm, the designer is constantly busy with choices and the reflection on them, which ensures that the end result is a reflection on the situation. This paradigm is in line with the idea of Kolb (2014), who suggests that real-life experiences are central to the human learning process. Experiential learning frameworks describe learning as a cycle that begins with an experience, followed by reflection on that experience, which then repeats itself. Experiential learning processes help people understand why certain events happen (Ng, Van Dyne & Ang, 2009). Following this line of reasoning, it is expected that taking on a design thinking project has a lasting influence on the people involved.

2.3 From individual learning to organizational learning

The second part of this analysis pertains to the link between individual learning and organizational learning, by explicitly looking at the mechanisms that are a product of design thinking.

Organizations learn through their individual employees, which makes individual learning important for the organizational learning process. The importance of individual learning in organizations is often cited as essential for organizational change and survival (Nonaka, 1994; Senge, 1990). Although organizational learning is more than the sum of all individual learning trajectories of employees, individual learning models are often used as a basis (Kim, 1993). The process and interaction between individual and organizational learning is complex, and a single theory is unlikely to be sufficient to represent its complexity (Casey, 2005; Kim, 1993). Within the framework of this research, I will examine to what extent empathy and physical artefacts contribute to the individual learning process and how they relate to organizational learning. Elsbach and Stigliani (2018) suggest that reflection on empathic feelings and physical artefacts helps employees understand why and how design thinking can be beneficially and efficiently used within the organization. This way development within organizations can be identified.

In his seminal work, Senge (1990) describes how a learning organization requires a holistic and systematic orientation for the whole to exceed the sum of its parts, rather than focusing on individual aspects of a system: *“At the heart of a learning organization is a shift of mind - from seeing ourselves as separate from the world to connected to the world, from seeing problems as caused by someone or something ‘out there’ to seeing how our own actions create the problems we experience.”* (Senge, 1990, p12). This statement puts emphasis on new ways of thinking. Upon closer inspection of Senge’s orientation on organizational learning, it is clear that an important aspect is the sharing of and reflection on

“At the heart of a learning organization is a **shift of mind - from seeing ourselves as separate from the world to connected to the world, from seeing problems as caused by someone or something ‘out there’ to seeing how our own actions create the problems we experience.”**

- Senge (1990, p12)

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mental models. A mental model represents a person's worldview; deeply ingrained assumptions, generalizations and the implicit and explicit understanding of a situation. Mental models provide context to a situation and guidance for processing new information. Kim (1993) suggests that making mental models explicitly and visibly contributes to the creation of a shared meaning. Ordinarily, we do not visualize our mental models, but through empathic experience and the use of physical artefacts, within the design thinking process mental models are made explicit. This can be achieved through sharing experiences, exchanging assumptions, sketching situations and making prototypes. Stigliani and Ravasi (2012) argue that physical artefacts contribute to the formation of collective meaning. When giving meaning to new and ambiguous situations, be it by a group or an individual, a consensus on how to deal with the situation is yet to be agreed upon. Within groups, collective meaning must then be given to such a situation. Physical artefacts allow one to manifest experiences and ideas into the physical world, making it available for others to process and reflect on more consciously. Because a physical artefact such as a sketch is a relatively permanent manifestation of an idea, an experience or a way of thinking, it facilitates permanent reflection and processing (Kim, 1993). When mental models are visualized and shared in the organization, this contributes to the learning process of the organization (Kim, 1993). An organization consists of persons who are replaceable, but also of physical artefacts, such as archives, reports and manuals, which are irreplaceable and contribute to the memory of an organization. Organizational memory requires active and physical artefacts that define the organization's core values. This ensures that organizational learning is independent of specific individuals. Thus by visualizing mental models, the experience of empathy and the physical artefacts connect in a rather valuable way, and it is expected that officials experience both of these elements as relevant for their organization.

2.4 From design thinking to change in the public sector

Public sector organizations are often bureaucratic, where policymaking follows a rational and linear path from problem definition to resolution. As mentioned in the introduction, this is no longer sufficient in a fast-changing world where the public sector faces inherent complexities (Mintrom & Luetjens, 2016). If design thinking stays on a project or intervention level, it has the negative potential of becoming a critique on the public context from which it emerged. Other risks involve projects becoming too dispersed or that there is not enough competence to maintain a development. Well-intended interventions could then lead to unintentional consequences (Shergold, 2015). Design thinking holds the most promise when it transcends the stage of intervention, and new ways of thinking become integrated in the organization. This sort of organizational change seems counter-intuitive for the public sector, since the legitimacy of their actions is ingrained in our society through path dependency based on the objectivity and fairness of bureaucratic principles. However, complex real-life situations do create areas of tension between policy and purpose, and that is a field in which many public sector officials operate (Klijn & Koppenjan, 2016; Schaminée, 2019).

Despite the fact that the public sector is characterized by bureaucracy and anonymity, a Dutch survey shows that being of service to the public is a significant motivator for public sector officials. Moreover, public interest seems to have a positive effect on their commitment and willingness to exert effort (Leisink & Steijn, 2009). The desire of officials to create valuable public service and provide long-lasting solutions for complex problems can be cultivated by a more dynamic approach in public sector organizations. The products provided by design thinking – experiences of empathy and physical artefacts – lead to individual learning about certain situations or specific problems but also provide a new lens to reflect upon organizational

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culture. As previously mentioned, design thinking triggers an experiential learning process, which not only facilitates individual learning about the experience of citizens but also makes room for a new orientation on the current organizational system, (Elsbach & Stigliani, 2018) and ways to create fair policy suitable for the right intention.

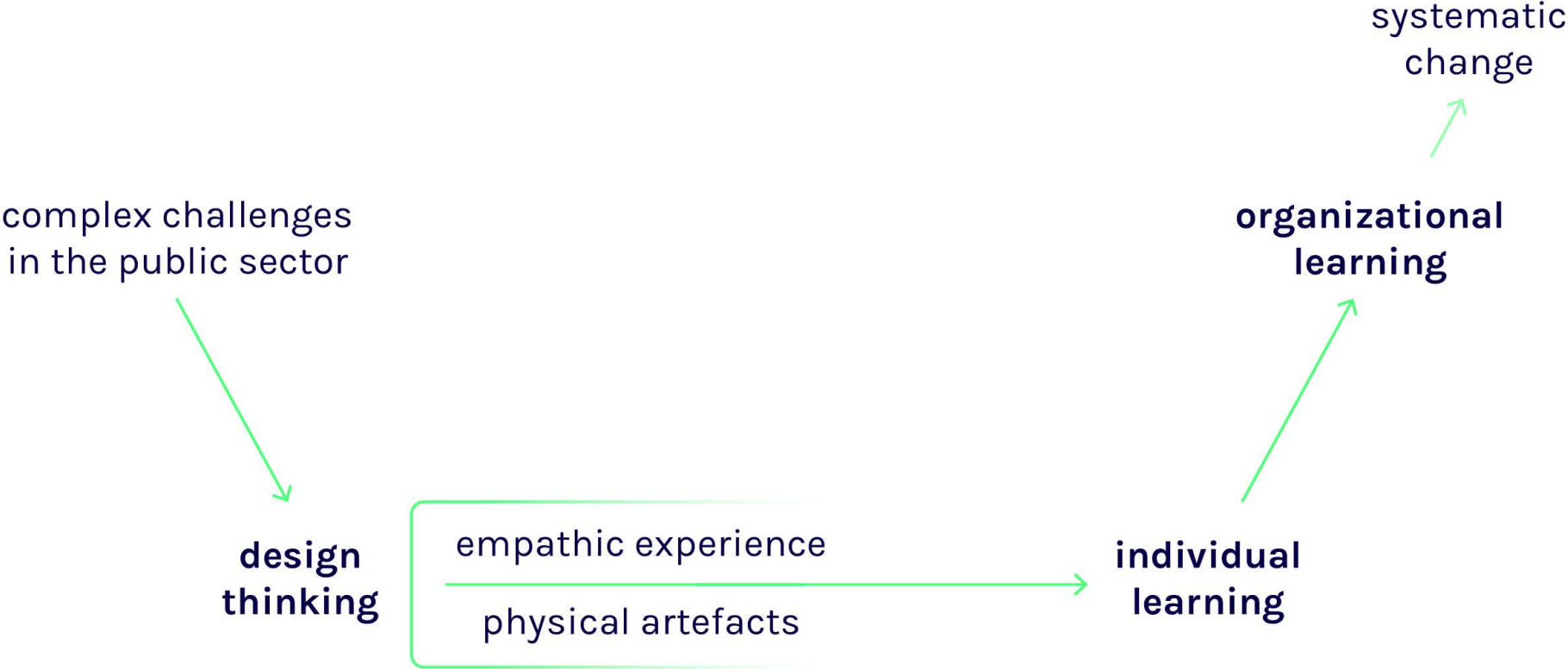


Figure 2. conceptual model

methods

In The Netherlands there is a small yet steadily growing group of designers working with and within public organizations. This paper conducts a multiple-case study, analyzing four design thinking cases by TwynstraGudde, a public sector organizational consultancy. They make use of Frame Innovation, a design thinking method described by Dorst (2015). All cases deal with rather complex problems and involve public sector organizations and officials. All are relatively contemporary - the oldest dating back to 2015 - and situated in The Netherlands. Below you will find a brief outline of the different cases, more detailed descriptions can be found in *chapter 4 - findings*.

3.1 Cases

Agriculture Innovation Campus - 2016

An initiative where agriculture and innovation collided to explore and find solutions to the complex problems of the agricultural sector. Officials from the province of Brabant were involved.

- 2 officials interviewed

Extreme Weather - 2019

A project about climate adaptation with initiating officials from various provinces, regional water authorities and municipalities in the south of The Netherlands.

- 5 officials interviewed

Gas-Free Neighborhoods - 2019 /2020

An ongoing project about the national switch to gas-free neighborhoods. In this project officials from the Ministry of Interior, and from the municipalities of Dordrecht, Veenendaal and Rotterdam are involved.

- 3 officials interviewed

The A9 Land Tunnel - 2015

A project concerning the expansion of the A9 highway running along the south-east part of Amsterdam. Officials of the municipality of Amsterdam and the Ministry of Infrastructure and Water were involved as patrons.

- 3 officials interviewed

³ TwynstraGudde makes use of the Frame Innovation method; a design thinking method developed and described by Dorst (2015). This method distinguishes itself by adding an extensive desk research phase to fully understand the problem, before doing empathic research. Furthermore, this method works with reframing – redefining the current problem frame – which is a way to create a new perspective in order to come up with valuable solutions.

3.2 Research design

Thirteen public sector officials involved in design thinking projects were interviewed for this multiple-case study. The selection of cases and interviewees is a purposeful sample, derived from their particular involvement with the design thinking process, specifically the design thinking process and corresponding method used at TwynstraGudde³. Studying several different cases from TwynstraGudde ensures ample variation in potential patterns (Merriam, 2009). The choice to interview officials follows from the question whether their experience with the design thinking process did lead to individual and organizational learning. The officials invited to participate were deemed to have significant involvement in their respective cases and processes, and therefore able to share much valuable information on their experiences. This produces a nuanced cluster of information (Patton, 2002). All thirteen officials held different positions with varying degrees of responsibility and a range of directives. Some were involved on a governmental level, others on a municipal level. However, all the officials were already involved concerning the initial task, and played an important part in their design thinking projects. All officials invited agreed to participate in the research. For the purpose of this study I will not distinguish between the function types of the interviewees because their involvement is too nuanced to be categorized effectively. This will also ensure the anonymity of the officials.

Additionally, two officials with design backgrounds who work in the domain of innovation within large municipalities were interviewed. Their professional activities revolve around innovative methods and the integration of design thinking within their organization. Their specific knowledge and experience provide deeper insights into the link between individual learning and organizational learning in the public sector.

Capturing the authentic and truthful reality of the participants adheres to the validity of this study. The qualitative nature of this research acknowledges that there might not be simple answers, and that findings might be contrasting and context dependent (Merriam, 2009). Grounded in real-life situations, this multiple-case study provides an integrated view that has the potential to help structure future research and improve the practice of design thinking in the public context.

3.3 Data collection

For this research two secondary interviews from **The A9 Land Tunnel** case and two secondary interviews from the **Extreme Weather** case have been analyzed, and nine interviews with officials from the other cases have been held and analyzed. The primary data source of this research is semi-structured interviews. The structure of the interview is focused on key concepts concerning the process of design thinking. This provides a deeper examination of the design thinking method and gives insight into the essence of the experience. By leaving the structure minimal the officials were encouraged to tell their stories and speak freely.

To answer my main research questions, I employed a topic list based on the theoretical framework. The list included the following key concepts: *Individual Learning*, *Organizational Learning*, *Empathic Experience* and *Physical Artefacts*. The secondary interviews (N=4) did not explicitly refer to these key

concepts, however they were implicitly discussed, making the interviews eligible for analysis. The rest of the interviews (N=11) were all conducted in an online environment, due to circumstantial reasons. The interviews lasted on average an hour and took place in March, April and May of 2020. After fifteen interviews data redundancy had been achieved and collection and analysis was concluded.

The secondary interviews (N=4) were provided by Geert Brinkman, who conducts doctoral research into design thinking strategies in the public sector at the Erasmus University in Rotterdam. Most other interviews (N=7) were held by Geert Brinkman and myself, in which we used a shared topic list. The remaining interviews were held by myself (N=4). For the officials working in the domain of innovation within a large municipality (N=2) I used the same topic list, but with a modified introduction. Both topic lists can be found in the appendix.

3.4 Procedure and ethical considerations

All officials have been anonymized; they have been given a pseudonym and identifying information is not used in the article. The interviews were recorded with participant consent. The recordings and transcripts of the interviews are stored in an encrypted database and will be deleted once the research is fully completed. Anonymity was explained in an email prior to the interviews and consent forms were utilized. A copy of this form can be found in the appendix. These precautions were put in place to ensure that officials would feel able to freely express themselves.

3.5 Analysis

Before commencing the data analysis, all interview recordings were transcribed verbatim and checked for accuracy. Quotes used in *chapter 4 - findings* are not completely verbatim, because the interviews took place in Dutch and were then translated to English for the purpose of this thesis.

chapter 3 methods

Data analysis started during data collection and continued throughout the process. Data was managed and coded using Nvivo 12, a qualitative research program. Based on expectations derived from my theoretical framework, I used a deductive approach to analyze the data within the existing framework. This provided initial codes, such as *Individual Learning*, *Organizational Learning*, *Empathic Experience* and *Physical Artefacts*. This means that the coding of the interview data is largely consistent with the topic list based on the theoretical framework. However, this method also provides room to identify new codes and subcodes. These newly found codes provide a possible basis for further research and will be discussed in *chapter 5 - 5.5 recommendations for future research*.

findings

The interviews shed light on public sector officials' experiences and perceptions of design thinking. The results will be discussed in this chapter and I will elaborate on and distinguish between the different key concepts discussed in *chapter 2 - theoretical framework*. Before continuing with the findings I will first provide a description of the cases that will be discussed.

4.1 Case description

Agriculture Innovation Campus

The province of Brabant had a political desire for an agricultural innovation campus to explore and tackle the complex problems within the agricultural context. TwynstraGudde used design thinking to create a process in which officials from different areas of expertise would debate, design and learn along the way. Firstly, a core group defined the scope of the overarching questions and did in-depth research. Secondly, students of the HAS and Design Academy conducted empathic research under the guidance of members of the core group. After this phase, additional relevant people from the agricultural field joined the group. Over the course of several sessions, themes were chosen and frames were developed to give new ideas and perspective for the farmers and partners. The frames served as a foundation for new ideas, based on which interventions, products and suitable partners were found. At the final stages of the process, professional designers were involved to optimize the prototypes. One of the outcomes was the "Do It Yourself Chicken", a project initiated to make consumers more aware of the slaughter of animals.

Extreme Weather

This project revolved around climate adaptation in the provinces of Limburg and Brabant. These parties felt that solutions to climate change often come from a technical perspective, but felt the urgency to come

Agriculture Innovation Campus



Figure 3. "Do It Yourself Chicken", one of the outcomes of the agriculture innovation campus. This project gained a lot of media coverage and political attention (Doehetzelfkip, n.d.).

Extreme Weather



Figure 4. Set up for the empathic research during the Dutch Design Week (Schaminée et al., 2019, p.15).

chapter 4 findings

up with a societal perspective. This design thinking project was initiated to get citizens actively involved in tackling the climate change problem. Officials from fourteen government authorities took part in this design thinking process. All officials went through the same process with the same steps but were locally divided over different municipalities. TwynstraGudde navigated and facilitated the process. The project group started with intensive empathic research; not only did they interview people in the neighborhoods, they also did research during the Dutch Design Week. After this research they developed new frames on the basis of newly formulated themes. In the final phase different prototypes for solutions were developed and tested, and officials worked closely together with experienced designers.

Gas-Free Neighborhoods

The municipalities of Dordrecht and Veenendaal each have a pilot neighborhood that will be the first of many to transition to becoming gas-free. TwynstraGudde was one of the initiators of an event called Springstof, which was organized to explore energy transition as a social transition for citizens, government authorities and commercial parties. After this event, the Ministry of Interior and the previously mentioned municipalities decided to take part in a design thinking project that was further guided by TwynstraGudde together with trained designers. The empathic research was mostly carried out by the team of TwynstraGudde and the additional designers. For this research they made use of different physical artefacts such as colored ribbons and maps of the neighborhoods. Together with different stakeholders, themes and frames were articulated as different perspectives for the energy transition. Various prototypes are currently being tested.

The A9 Land Tunnel

This case concerned the expansion of the A9 highway. Part of this was the construction of a tunnel along the south-east border of Amsterdam. The Ministry of Infrastructure and Water, the municipality of Amsterdam and real estate developer IXAS were key players. TwynstraGudde was asked to find ways to create added value

Extreme Weather



Figure 5. Prototype of one of the solutions “The Way of the Water”, with this instrument kids can visualize how the water flows on the tiles. This prototype led to an educational workshop (Schaminée et al., 2019, p.51).

Gas-Free Neighborhoods



Figure 6. A map of the neighborhood being used to guide a conversation and to explore what residents find important (mens en energie, n.d.).

chapter 4 findings

to this project and to build ties with the surrounding community. This led to a design thinking project that was set up to discover the value of the construction work and building site during the development of this new tunnel. TwynstraGudde carried out the design thinking process and involved the concerned parties every step of the way. This resulted in “*Community Construction*”, a collaborative project between the neighborhood and the construction project. Within “*Community Construction*” there is room for different kinds of projects and initiatives proposed by the residents of the surrounding community, which are then supported with the help and resources of the construction parties. For instance, some of the officials taught special classes at a weekend school in the community.

4.2 The process is the result; empathic experiences and physical artefacts

All interviewees perceived the design thinking process as a new and different way of working than what they are used to in the public sector. One of the things that multiple officials pointed out was that it was very insightful to start by exploring the daily lives and values of citizens. They indicated that this is rather different to their usual point of departure.

“Here [in a design thinking process] the starting point is the experience of the citizens and not the political environment. I think that this is the biggest difference for me.” – Anton

They all confirmed that talking with citizens or the target group without direction, compensation or an agenda is highly uncommon. Usually when talking to citizens or initiating a participatory project, citizens are asked for their opinion about a certain topic. But other aspects of their lives are not discussed. By talking with citizens about their day-to-day lives and their outlook on the world, the officials got a better understanding of how a certain problem would resonate in the world of the target group.

The A9 Land Tunnel



Figure 7. Kids attending weekendschool who are photographing community residents, these photos were used as fabric around the fences of the construction area (Buurbouw, n.d.).

“Because you don’t often ask people: ‘How are you in life? Where do you want to go? What do you find important?’ And we both [my colleague and I] found that super insightful and then from there we could also think: ‘Ok, how can you connect the energy transition to these insights so that it really matches how people live and what they find important? And how do you ensure that what they find important is the trigger, instead of making up your own message and trying to convince people?’” – Jessica

Empathic research provided the officials access to more diverse knowledge about the target group, such as daily obstacles they faced, wishes for the future and what they experienced as positive or negative. Officials state that this gave more context and a more holistic view for the problem they were dealing with. For some officials it made them aware of other issues closely related to the main problem. This more holistic approach brought increased attention to what drives and motivates their target group, enabling officials to come up with meaningful and promising ways to tackle the problem.

In the cases where the use of physical artefacts provided an invitation or conversation starter, it proved easier to reach out to target groups and start more open, undirected conversations. A prime example is the **Gas-Free Neighborhoods** case, where residents of the neighborhood were asked the following question: “*What moment in the future do you look forward to?*”. This served as the start of an open conversation. With colored ribbons in different sizes, people were encouraged to express their perspectives of the future. The length of the ribbons symbolized how far they looked into the future. The ribbons and the accompanying statements were collected and used as a reference in the rest of the project.

The same goes for other projects; physical artefacts provided guidance and a safe starting point for more open conversations and empathic research. The physical presence of an object also helped

Gas-Free Neighborhoods



Figure 8. Different people holding up their colored ribbon (mens en energie, n.d.).

“[...] when you see all those ribbons hanging at different lengths, it is a very pleasant way of saying: ‘Well, everyone has told something about themselves personally, which they are looking forward to.’ That also creates a bit of trust.”

– Anton

to overcome differences between individuals. These physical artefacts were often initiated by the design thinking process facilitators and most officials experienced them as helpful assets to the process. There were also other forms of physical artefacts that aided the thought process during the design thinking project. The use of for instance a timeline or sticky notes in sessions helped to complement and organize each other's thoughts. But these visual methods were only experienced as useful when they were directly related to stimulating and thought-provoking questions.

4.3 Out of the comfort zone; individual learning

Officials mentioned they had experienced some sort of individual learning curve. Most of them described it differently; some related it to their personal life and development, others were more analytical and work-oriented. Many of them felt they had to step out of their comfort zone and do things differently than their usual way of working. Christien mentioned feeling that the design thinking process helped her take a step back from her usual work routines and zoom out, which helped her to be more goal oriented and purpose driven.

“I noticed that since this project, I look at my work differently. I am much more aware: ‘Are we doing something that makes sense which really helps in the real world, or are we working in our own comfort zone and being comfortable with our rules?’ Because that is very easy, then you can always refer to the rule. If you don’t think about whether those rules really help at all, then what are you really doing for the cause?” – Christien

Insights and knowledge gained from these experiences often led to more understanding of why well-intentioned policies do not always work. For instance, in the **Extreme Weather** case, the government has the means to stimulate people to replace the tiles in the gardens for soil or grass in order to

chapter 4 findings

improve rainwater drainage, but it is very difficult to actually get people to do this. By figuring out what extreme weather means for citizens and what could motivate them to change their behavior, the officials found that there were more effective ways than the current spectrum of solutions. One of the successful outcomes was to just make it easier. In this scenario, the experiment was to give people that recently bought a newly-built house the opportunity to adopt plants for their future gardens. By providing an inspirational local nursery garden, they offered buyers a meeting point and made having a green garden more achievable for people during the frenzy of moving house.

Overall the officials felt that by being more aware of the values and stimuli of their target groups, public policies would be better connected with and interwoven into the daily lives of members of the public. This insight, along with some practical conversational tools, helped officials to connect the intention of their work and policies with the people they actually do it for.

“I realize much better how difficult it is to really get citizens moving with the problems that we [as a government organization] experience. [...] Yes, it is delusional to think that others will work hard for you if they do not see any added value to their own lives.” – Stefan

Letting go of the usual route from A to B and allowing themselves to zoom out for a more integrated context resonated with the officials and enriched their working lives. All of them reflected more on the empathic experiences, and what they meant for them, and much less on the use of physical artefacts.

Extreme Weather



Figure 9. The inspirational nursery garden, where buyers of newly-built houses could adopt plants (Schaminée et al., 2019, p.24).

4.4 What and where, together; organizational learning

All of the officials agreed that using design thinking, and an altogether more human-centric approach to their work, could be a solution for many of the more complex problems the public sector

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has to deal with. Many officials mentioned that the design thinking process is as important, if not more so, as the resulting prototypes or experiments, because the process itself leads to a more integrated outlook on what role the public sector can fulfil for citizens. In most cases, the results or designed prototypes were at least partly created to maintain the open conversation and interaction between citizens and the public sector. **The A9 Land Tunnel** case clearly demonstrates this with “*Community Construction*”. This project made it possible for children attending summer school to go on an expedition in the tunnel and learn about construction work. The construction company also provided supplies to a school that tutors children with learning difficulties.

Some of the officials really felt that they had become some sort of ambassador for this new way of thinking and really tried to apply it to other projects and current issues. However, many of the officials expressed that it can be hard to translate design thinking into the reality of their organizations. Most of them admitted that day-to-day work activities are highly time-consuming, and focusing on new ways of working and thinking is not always a priority. Convincing other people in the organization of the benefits of design thinking was often described as difficult; most people found the process difficult to explain and to relay to the orientation of their organization. Some of the officials mentioned that a successful pilot project was very helpful for more company-wide reflection on the process, and that it is therefore important to start with small, low-cost projects to showcase the potential of the process.

“This is not a process that you easily transfer to a colleague. And that also influences what eventually happens with the results or how widely they are shared in the organization. I think you really need ownership and a kind of pride in such a process, in order to talk about it and share it.” - Christien

“The point is not just that we ultimately have a working prototype, but also that we have thought about: what and where, together in such a neighborhood.

[...] ‘What do people find important in this neighbourhood?

And what does that mean for my role?’ That is really essential.

I think that is perhaps more essential than what ultimately comes out of the process.”

- Jessica

Another frequently mentioned obstacle was the fact that a design thinking project is very different from most other projects in the public sector where you know up front what a project will lead towards. Not all processes in organizations can handle this uncertainty. Some officials argued that the board is often more easily convinced than the managerial level, due to financial reasons and lack of certainty of outcome. In the **Gas-Free Neighborhoods** case, one participating municipality came up with an innovative solution after being part of a design thinking process to combine empathic experiences with financial benefits. They organize informal conversations before starting construction developments in order to openly talk with citizens and take into account their opinions, which leads to less friction and procedure time, and therefore results in financial benefits.

4.5 It has to be fair; public sector organizations

Another hurdle the officials found was that the design thinking process does not align with how the public sector currently operates. Nearly all interviewees said that they struggled with limitations within their organizations and how to maintain new ways of thinking. Many officials felt that being part of the public sector makes it difficult for them to change their way of working. Most of them specified things like the need for efficiency, work pressure, bureaucracy and complex decision-making as complicating factors. Political pressure was one condition that was deemed to either facilitate or impede the implementation of design thinking. Political orientation is perceived to be very influential when it comes to how a project is received and how much impact it can have. Another important element mentioned was that design thinking gave insight into the connection between different policy areas. Yet, in reality, actually joining certain areas is implausible because it goes against the logic of how these organizations are structured.

“So yes, the bigger the problems get, the clearer it is that we just don’t have a solution for all problems with the conventional way of working.”

- Stefan

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Another issue mentioned was the character and the values of the public sector, and how this sometimes conflicts with design thinking, a process that tends to emphasize the individual. Some of the interviewees reflected on the purpose and role of government, and how to stay true to values such as honesty, equivalence and reliability. However, most officials accepted and acknowledged the character of the public sector and its values. Paula even argues that the bureaucratic character is actually a benefit to the public sector.

“Once you have a breakthrough in the public sector, it can have a really big effect. So it’s also good that it is a bit unwieldy. Because you cannot take a different path every week as a public sector organization. You must also have the trust of the citizens that you are a reliable organization, because you are the government. But if you get something done, and you really have a breakthrough, you can do really beautiful things.” – Paula

Paula and Nynke are both experts working within large municipalities. They are determined that design principles can help to improve current organizational structures. They feel that guarding the quality of design thinking projects, checking in to make sure projects do not diminish over time and keeping an active connection between different policy areas are important features to integrate design thinking in public sector organizations.

“We have to pay attention to do things for the community, not for an individual. It has to be fair, especially as a government, which is important to maintain.”

– Maarten

conclusion

This chapter will elaborate on the findings from the interviews and will aim to answer the research questions. Subsequently this chapter will discuss the limitations of this study and will address recommendations for future research.

5.1 Individual learning and organizational learning

The outcomes of this research suggest that empathic experiences are an important factor for individual learning. These experiences contribute to shared knowledge and insights and give access to new information. All of the officials involved reflected on the empathic experience of design thinking in other work situations. This gave them a better understanding of how the choices they make reflect on the situation. Furthermore, empathic experiences had a lasting influence on the officials involved, which is in line with Kolb's (2014) experiential learning framework.

The theoretical foundation of this paper states that the organizational memory, consisting of physical artefacts such as manuals and reports, assures that organizational learning is independent of individuals. To provide reflection on the design thinking process, elements and outcomes of the process should be actively shared within the organization. Mental models, made visible with the help of the physical attributes, are often only reflected on and shared within the project team during the process, and not with the rest of the organization. Most of the time, the officials were only able to share the outcome of the process with some of their colleagues, such as a successful project or a promising experiment or prototype. Sharing solely the result of a process conflicts with the idea that part of the strength of design thinking is rooted in the process itself,

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since that is where individuals experience a shift of mind. As specified in *chapter 4 - findings*, most outcomes of the design thinking projects prioritized interaction with the public. This usually manifested in the form of an intervention between the world of the general public and the world of the public sector. The fact that this experience is reflected in the outcome might be explained by the fact that the empathic experience had a large effect on the individual learning process. Furthermore, it seems that a good pilot project provided enough assurance for an organization to have more confidence in additional or other design thinking projects that have uncertain outcomes.

These findings answer the first research question: **Which insights from a design thinking process do public sector officials experience as relevant to their own work and their organization?** Empathic experience is highly valued and deemed very relevant to both individual learning and organizational learning. Physical artefacts seem to be experienced as less relevant to individual learning; most officials did not reflect on this to the same extent, and when they did it was only in relation to empathy. For organizational learning, physical artefacts, particularly ones that are a result of the design thinking process, seem to be essential to engage the organization and are therefore very relevant. Even here, the connection with empathic experience is still highly present. Physical artefacts seem to support and make evident empathic experience. By bridging the understanding between the different groups involved, it adheres to the systematic and holistic orientation that according to Senge (1990) is fundamental for organizational learning.

5.2 Success in the public sector

The answer to the second question – **Within the context of the public sector, which conditions do officials experience as relevant to the success and durability of a design thinking process within their organization?** – is based on two dominant patterns found in the results, which are discussed in the next paragraphs.

In an ideal world, design thinking projects always provide long-term perspective and dynamic solutions. An interesting finding is that projects in the public sector are deemed successful if they produce some sort of short-term profit, such as financial benefits, less friction, fewer complaints or lowered procedure time. A design thinking project does not always have short-term objectives and it is therefore uncertain whether a project will lead to a directly profitable situation. Often a design thinking project is started when a problem becomes too complex for the conventional way of working, and when there is a sense of moral obligation to reach more diverse civil groups and the wish to include social benefits. These ambitions are difficult to measure and conflict with the need for efficiency in the public sector.

The values that underlie the duty of the public sector are answered by bureaucratic principles. In reality these principles often lead to tension between the aim for equality and the different needs of individuals in a pluralistic society. Design thinking approaches these values differently, for instance by emphasizing individuals and approaching problems locally, in order to come up with purpose-driven solutions. As an example, a design thinking project could come up with a solution that spans across different policy fields, something that could be difficult to work around because policy fields often have their own separate arrangements and funding. Working with design thinking in the public sector creates new considerations about how to approach these values, but since bureaucracy is the

foundation of the public sector, this is often the norm. These bureaucratic norms can obstruct new methods, making it harder for a design thinking process to transcend the stage of an intervention. For design thinkers it is therefore vital to be aware of these bureaucratic forces, and to try and work with or around them instead of against them.

5.3 Improvements

The insights provided by the experience of officials resulted in two possible improvements to answer the final question: **How can the design thinking process be improved to become more compatible with the public sector so that it can provide beneficial insights and stimulate change within its organizations?** These improvements are based on ways the process can be made more relevant to public sector officials and their organizational culture.

Direct benefits

It is not always immediately obvious whether a design thinking project will deliver direct benefits, because at the start of a project the outcome is unknown. This is a strength of the process but a difficulty for public sector organizations. One way to address this is by exploring how certain steps or discoveries along the way can be directly beneficial. As illustrated in *chapter 4 - 4.3 But once you have a breakthrough; organizational learning*, empathic research in the form of open conversation prior to a construction project led to shorter procedural time which proved to be financially attractive. This in turn led to organizational learning; it showed the organization how design thinking can lead to lowered costs. By emphasizing these kinds of directly applicable techniques, learned from a design thinking process, public sector officials become more inclined to dive into a design thinking process that results in something that has long-term potential.

Ownership

Ownership is more of an addition to the process rather than an improvement. The design thinking process successfully creates a learning mechanism on both an individual and an organizational level. Nonetheless, integration on an organizational level proves to be difficult for a number of different reasons. Both on a practical level as well as on a level of basic approach to core values. Implementing a fundamentally new way of thinking within an organization is a matter of change management. It requires a solid and supportive base and enough ownership within an organization of the new way of thinking. In order to make this possible, there needs to be sufficient overlap between expertise of the public sector and design thinking. This can be provided by design thinkers and innovation experts who work in a public sector organization that have the explicit job to account for innovative ways of thinking. The presence of such a role could be an important link between the reality of public policy and the promises of design thinking.

Another option could be a form of aftercare for public sector officials that have been involved in design thinking projects to help them navigate between new ways of thinking and dealing with the current state of affairs. By having the opportunity to reflect on their job, outside of the organization and with the help of a design thinking expert, they could create a more solid base and a stronger sense of ownership concerning this new way of thinking. This could encourage a more systematic perspective within the organization, enabling lasting connections between different policy areas and creating opportunities to work with the forces of bureaucracy instead of against them. This form of guidance could also be beneficial for the design thinker, as it gives insight into what other projects might need to transcend the intervention level.

5.4 Limitations

The most important limitation to keep in mind when considering the conclusions of this research is that each official had their own specific experience. Each case had a different ambition, process and outcome, making the involvement of each official unique. For some interviewees the design thinking process took place several years ago, which could have an effect on the accuracy of their memories (Koriat, Goldsmith & Pansky, 2000). Furthermore, each case was perceived as successful and all officials were wholly positive about their experiences, meaning there was a lack of insight into difficulties and important improvements.

The position of the researcher is an important aspect of qualitative research (Hennink, Hutter, & Bailey, 2020). For example, my internship at TwynstraGudde potentially influenced how the interviewees responded to me. Since most of the interviews were held in collaboration with Geert Brinkman, an independent researcher, neutrality was better preserved. It is also vital to divulge my pre-existing knowledge of the design thinking process due to my background as a designer. I continuously strove to remain conscious of this bias so as not to influence the interviewees' thoughts and observations.

5.5 Recommendations for future research

A qualitative study does justice to the complexity of design thinking and its unique processes. However, almost all research into design thinking so far has been qualitative, whereas quantitative research may well provide more profound insights. The addressed topics in this paper have the potential to be addressed in the form of a survey. A promising subject for future research can be found in gas-free neighborhoods, since all neighborhoods in The Netherlands are due to come off the gas system, thus providing a natural experimentation situation. This gives the opportunity to compare different approaches to the same case, and review which factors in a design thinking process are relevant to success.

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While this paper concentrated on empathic experience and physical artefacts, subsequent research ought to focus on additional elements within the design thinking process, describe how they are perceived and analyze how they correlate with the reality of the public sector. Concerning the latter, it is also important to examine unsuccessful design thinking projects. This could provide a deeper understanding of the conditions under which design thinking has potential in the public sector. Furthermore, political climate was often mentioned as an influencing variable, which could either positively or negatively affect the success of a design thinking process. Within the scope of this research it was not possible to elaborate on that. Gaining more insight into this knowledge gap could provide useful tools for design thinkers working in the field of the public sector. Additionally, little is still known about how design thinking can be effectively integrated within public sector organizations. This could be uncovered by conducting further comparative research between cities with and without design thinking roles within their organizations.

5.6 Overarching conclusion

The field of sociology and design thinking are highly intertwined and I strongly believe this combination deserves more academic attention. The field of sociology aims to understand, analyze and solve complex, societal problems relating to humans in a certain context. I am convinced that design thinking has real potential to solve highly complex societal problems. In this research I tried to connect both fields in order to understand how officials in the public sector can become better equipped to anticipate and deal with complex problems. Merging sociology and design thinking may not be the solution to all the world's problems, but I do think they can provide vital knowledge. **I would encourage further research in the area of sociology and design thinking to build a more profound body of knowledge. These areas of expertise are both concerned with human behaviour in context – where sociology focuses on the why, design thinking focuses on the how – two fundamental questions in a dynamic society.**

Literature

- Brown, T. (2008). Design thinking. *Harvard Business Review*, 86(6), 84-92.
- Buchanan, R. (1992). Wicked Problems in Design Thinking. *Design Issues*, 8(2), 5. <https://doi.org/10.2307/1511637>
- Burt, R. (1992). Structural Holes and Good Ideas. *American Journal of Sociology*, 110(2), 349-399. <https://doi.org/10.1086/421787>
- Buurbouw. (n.d.). [Untitled photograph of children]. Buurbouw. <https://buurbouw.nl/initiatieven>
- Casey, A. (2005). Enhancing Individual and Organizational Learning. *Management Learning*, 36(2), 131-147. <https://doi.org/10.1177/1350507605052555>
- Coleman, J. S. (1994). *Foundations of social theory*. Harvard University Press.
- Conway, R., Masters, J., & Thorold, J. (2017). *From Design Thinking to Systems Change*. RSA.
- Doehetzelfkip. (n.d.). [Untitled photograph of chicks]. Doehetzelfkip. <http://doehetzelfkip.nl/week-3-hallo-kuikens/>
- Dorst, K. (2011). The core of 'design thinking' and its application. *Design Studies*, 32(6), 521-532. <https://doi.org/10.1016/j.destud.2011.07.006>
- Dorst, K. (2015). *Frame Innovation: Create New Thinking by Design*. MIT Press.
- Dumas, A., & Mintzberg, H. (1991). Managing the Form, Function, and Fit of DESIGN. *Design Management Journal (Former Series)*, 2(3), 26-31. <https://doi.org/10.1111/j.1948-7169.1991.tb00573.x>
- Elsbach, K. D., & Stigliani, I. (2018). Design Thinking and Organizational Culture: A Review and Framework for Future Research. *Journal of Management*, 44(6), 2274-2306. <https://doi.org/10.1177/0149206317744252>
- Gay, P. D. (2005). *The values of bureaucracy*. Oxford University Press.
- Goldschmidt, G. (1997). Capturing indeterminism: Representation in the design problem space. *Design Studies*, 18, 441-455.
- Hennink, M., Hutter, I., & Bailey, A. (2020). *Qualitative research methods* (2nd ed.). SAGE Publications.

literature

Kim, D. (1993). The Link between Individual and Organizational Learning. *The Strategic Management of Intellectual Capital*, 41-62. <https://doi.org/10.1016/b978-0-7506-9850-4.50006-3>

Klijn, E. H., & Koppenjan, J. (2016). *Governance Networks in the Public Sector*. Routledge.

Kolb, D. A. (2014). *Experiential Learning: Experience as the Source of Learning and Development*. FT Press.

Kolko, J. (2010). Abductive thinking and sensemaking: The drivers of design synthesis. *Design Issues*, 26, 15-28.

Koriat, A., Goldsmith, M., & Pansky, A. (2000). Toward a psychology of memory accuracy. *Annual Review of Psychology*, 51(1), 481-537. doi:10.1146/annurev.psych.51.1.481

Leisink, P., & Steijn, B. (2009). Public service motivation and job performance of public sector employees in The Netherlands. *International Review of Administrative Sciences*, 75(1), 35-52. <https://doi.org/10.1177/0020852308099505>

Liedtka, J. (2014). Perspective: Linking Design Thinking with Innovation Outcomes through Cognitive Bias Reduction. *Journal of Product Innovation Management*, 32(6), 925-938. <https://doi.org/10.1111/jpim.12163>

Liedtka, J., & Ogilvie, T. (2011). *Designing for growth: A design thinking tool kit for managers*. New York: Columbia University Press.

Matthews, J. H., & Wrigley, C. (2017). Design and design thinking in business and management higher education. *Journal of Learning Design*, 10, 41-54.

mens en energie. (n.d.). [Photograph of conversation with resident]. Mens En Energie. <https://mensenenergie.nl/hoewe-werken/>

mens en energie. (n.d.). [Photograph collage of residents with ribbons]. Mens En Energie. <https://mensenenergie.nl/wie-zijn-wij/>

Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation*. John Wiley & Sons.

Mintrom, M., & Luetjens, J. (2016). Design thinking in Policymaking processes: Opportunities and challenges. *Australian Journal of Public Administration*, 75(3), 391-402. <https://doi.org/10.1111/1467-8500.12211>

literature

Ng, Van Dyne, L., & Ang. (2009). From experience to experiential learning: Cultural intelligence as a learning capability for global leader development. *Academy of Management Learning & Education*, 8(4), 511-526. Retrieved from <https://www.jstor.org/stable/27759189>

Nonaka, I. (1994). A Dynamic Theory of Organizational Knowledge Creation. *Organization Science*, 5(1), 14-37. <https://doi.org/10.1287/orsc.5.1.14>

Patton, M. Q. (2002). *Qualitative research & evaluation methods*. SAGE.

Rijnja, G., Seydel, E., & Zuure, J. (2009). Communicating from Context: To Higher Effective Governmental Campaigns [Communiceren vanuit de Context: Naar Effectievere Overheidscampagnes]. In W. L. Tiemeijer, C. A. Thomas & H. M. Prast (Eds.), *People Making Decisions: About The Psychology Behind Choices and Behaviour [De Menselijke Beslissers: Over De Psychologie van Keuze en Gedrag]*. Amsterdam: Amsterdam University

Rittel, H. W., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Sciences*, 4(2), 155-169. doi:10.1007/bf01405730

Schaminée, A. (2018). *Designing With - in Public Organizations*. Amsterdam: BIS.

Schaminée, A., Boland, D., Niggebrugge, K., & Witjes, T. (2019). [Photograph of empathic research during Dutch Design Week]. *Design Thinking & Extreem Weer* (1st ed., p. 15). Retrieved from <https://www.klimaatadaptatiebrabant.nl/design-thinking/resultaten>

Schaminée, A., Boland, D., Niggebrugge, K., & Witjes, T. (2019). [Photograph of prototype "The Way of the Water"]. *Design Thinking & Extreem Weer* (1st ed., p. 51). Retrieved from <https://www.klimaatadaptatiebrabant.nl/design-thinking/resultaten>

Schaminée, A., Boland, D., Niggebrugge, K., & Witjes, T. (2019). [Photograph of inspirational nursery garden]. *Design Thinking & Extreem Weer* (1st ed., p. 24). Retrieved from <https://www.klimaatadaptatiebrabant.nl/design-thinking/resultaten>

Schön, D. A. (1983). *The Reflective Practitioner: How Professionals Think in Action*.

Senge, P. M. (1990). *The fifth discipline: The art & practice of the learning organization*. Currency.

Shergold, P. (2015). *Learning from Failure: Why Large Government Policy Initiatives Have Gone So Badly Wrong in the Past and How the Chances of Success in the Future Can be Improved*. Canberra: Australian Public Service Commission.

literature

Stigliani, I., & Ravasi, D. (2012). Organizing thoughts and connecting brains: material practices and the transition from individual to group-level prospective sensemaking. *Academy of Management Journal*, 55(5), 1231-1259. Retrieved from <http://dx.doi.org/10.5465/amj.2010.0890>

Tromp, N., & Hekkert, P. (2019). *Designing for society: Products and services for a better world*. Bloomsbury Publishing.

Watson, T. (2017). *Sociology, Work and Organization: Seventh Edition*. Taylor & Francis.

appendix

The following documents can be found in the appendix:

Topic list publieke sector (Voor ambtenaren die deel hebben genomen aan het ontwerptraject) - appendix 1

Topic list publieke sector (Voor ambtenaren die binnen de publieke sector werken met innovatie en design thinking) - appendix 2

Akkoord onderzoek Lotte Biesheuvel - appendix 3

Akkoord onderzoek Geert Brinkman en Lotte Biesheuvel - appendix 4

All interviews have been held in Dutch, hence the fact all material in the appendix is Dutch. For translations, feel free to contact me.

Topic list publieke sector

Voor ambtenaren die deel hebben genomen aan het ontwerptraject.

Intro

Beeldvorming/Achtergrond

- Wie ben je
- Totstandkoming opdracht
- Eigen rol

Case terugblik

- Wat is jouw rol geweest (meerdere collega's betrokken in proces?)
- Hoe heb je het ervaren (was je al bekend met DT?)
- Implicaties
- Goed/niet goed
- Uitdagingen/hindernissen (wat vond je moeilijk?)
- Succesfactoren
- Leerpunten (wat vond je interessant)
- Uitkomst

Vergelijking Ontwerpen & Gebruikelijke Manieren

- Verschillen/overeenkomsten
- Meerwaarde ontwerpen
- Empathische ervaring?
- Kennisuitwisseling met nieuwe doelgroep?
- Belangrijkste inzichten
- Denkprocessen zichtbaar geworden? / Fysieke attributen
- Verandering / reflectie in eigen werkzaamheden mbt andere problemen

Publieke Sector & Ontwerpen

- Barrieres/hindernissen
- Oplossingen
- Leerpunten
 - Mbt proces binnen organisatie
 - Mbt functioneren binnen overheid

Reflectie

- In team oid gereflecteerd?
- Welke elementen uit DT blijven hangen?

Afsluiting

- Wat wil je nog delen?
- Vragen/opmerkingen

Topic list publieke sector

Voor ambtenaren die binnen de publieke sector werken met innovatie en design thinking

Intro

Beeldvorming/Achtergrond

- Wie ben je
- Wat is je achtergrond / opleiding
- Totstandkoming baan
- Rol binnen organisatie

Huidige projecten (misschien 1 of 2 recente uitlichten)

- Wat is jouw rol
- Implicaties
- Goed/niet goed
- Uitdagingen/hindernissen
- Succesfactoren
- Leerpunten (wat vond je interessant)
- Uitkomst

Vergelijking Ontwerpen & Gebruikelijke Manieren

- Meerwaarde ontwerpen
- Welke methoden/tools gebruik je vanuit je ontwerpachtergrond in je baan?
- Empathische ervaring?
- Kennisuitwisseling met nieuwe doelgroep?
- Denkprocessen zichtbaar geworden? / Fysieke attributen
- Verandering / reflectie in eigen werkzaamheden mbt andere problemen

Publieke Sector & Ontwerpen

- Barrieres/hindernissen
- Oplossingen
- Leerpunten
 - Mbt proces binnen organisatie
 - Mbt functioneren binnen overheid

Reflectie

- Reflectie in team?
- Welke elementen uit DT blijven hangen?

Afsluiting

- Wat wil je nog delen?
- Vragen/opmerkingen

Design Thinking in de publieke context

Akkoord onderzoek

Betreffende dataverzameling door interviews voor de volgende studie:

Master afstudeerscriptie Sociologie: Design Thinking en lerende ervaring
Lotte Biesheuvel – Universiteit Utrecht

Data

Dit interview zal uitsluitend ter beschikking worden gesteld in het kader van bovenstaand wetenschappelijk onderzoek. De data zijn alleen beschikbaar voor de betrokkenen onderzoekers en eventuele begeleiding.

Resultaten

De resultaten zullen gepubliceerd worden in bovenstaand wetenschappelijk onderzoek. De data zullen geanonimiseerd worden en zullen ook alleen in geanonimiseerde vorm gepubliceerd worden.

Bij het ondertekenen van het formulier verklaar ik:

- Dat deelname aan dit interview vrijwillig is.
- De audio van het interview op mag worden genomen.
- De opnames gedurende de looptijd van het afstudeertraject van Lotte Biesheuvel - naar verwachting tot en met eind juni 2020 - in een versleutelde omgeving bewaard.

Naam en handtekening (een digitale handtekening volstaat):

Lotte Biesheuvel

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Design Thinking in de publieke context

Akkoord onderzoek

Betreffende dataverzameling door interviews voor de volgende studies:

Promotieonderzoek Bestuurskunde: Public Sector Design
Geert Brinkman – Erasmus Universiteit Rotterdam

Master afstudeerscriptie Sociologie: Design Thinking en lerende ervaring
Lotte Biesheuvel – Universiteit Utrecht

Data

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- De opnames gedurende de looptijd van het promotieonderzoek van Geert Brinkman - naar verwachting tot en met juni 2024 - in een versleutelde omgeving bewaard.

Naam en handtekening (een digitale handtekening volstaat):

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