

Tegelen

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Tegelen: supporting individual and group reflection through a dynamic, structured and tangible tool

ARSLAN Yasemin^{a,b*} MOLS Ine^{a,c} and HUMMELS Caroline^a

^a Eindhoven University of Technology

^b Studio Nerf

^c University of Technology Sydney

* Corresponding author e-mail: mail@yaseinarslan.nl

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The municipality of Eindhoven is exploring her new role in a transforming society, just as other local governments. This role requires (behavior) changes on personal, organizational and societal levels. In this paper we shed light on how reflection for civil servants can be stimulated and supported through design. We present our qualitative empirical study carried out in the municipality of Eindhoven, which resulted into the reflection tool called Tegelen. Herein, we introduce a novel approach to support reflection for both personal as organizational usage, within individual and group sessions. Evaluating the concept in context showed that reflection benefits from the combination of cognitive and creative elements integrated in a dynamic and structured approach. Moreover, we experienced that embedding academic insights accompanied with the design process itself can support designers working in non-design environments to create trust and engagement with stakeholders. Longitudinal usage and further research is needed to explore the potential of Tegelen to support to reflection and stimulate behavior change in the long run.

reflection tool; behavior change, personal development; organisational development

1 Introduction

Just as other local governments, the municipality of Eindhoven is exploring her new role and approach in a transforming society in a globalized world (Castells, 2008). Like more cities in the western society, Eindhoven is facing many challenges that include the aging population, the changing jobs in the future, the refugee crisis and the decreasing socio-economic inclusion (Appadurai, 2006; McAfee, 2013; Oosterwaal and Torenlvied, 2010; Wallerstein, 2003). Politics researcher Diamond states that these challenges cannot be solved by governmental institutions or (citizen) communities only. Instead, they require local collaborative engagement that reflects the contextual needs (2013, p: 14-16). However, this transformation is not only about a change in our collaboration but actually requires a paradigm shift. Kuhn (1970) refers to paradigms as the beliefs,



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values, models and examples to guide a community of academics and practitioners. The importance of reflection in such transitions is also recognized locally. Strategic Design consultant Vera Winthagen 2017, from the Municipality of Eindhoven, states that municipalities have to obtain a more horizontal position with equal collaborations. Herein, reflecting on and in action is one of the essential skills that support growth and change (2017, p: 16, 18, 74-75). This shift asks for a transformation of the municipality, including the civil servants. It requires a change in their beliefs, attitude and ultimately their behavior and way of working.

1.1 Reflection forms the fundament for change

In essence, transformation asks for a mind and attitude change in the personal, social and societal spheres. According to anthropologist Appadurai (2006) personal change is triggered through one's consciousness, felt urgency and the feeling of empowerment. The latter is a process during which human activity alters from a passive to an active state that can support collaborative engagement and attitude change (Diamond, 2013; Sadan, 1997). Many academics state that the skill of reflection forms the foundation to create empowerment and consciousness that can lead to change (Appadurai, 2006; Bay and Macfarlane, 2011; Cattaneo and Chapman, 2010; Dewey, 1910; Korthagen and Vasalos, 2005; Mezirow, 1990). Sociologist Mezirow (1990) puts forward that being critically reflective on one's biases and beliefs opens the door for perspectives changes and paradigm shifts (p: 12-13). Philosopher Dewey argues that reflection supports how people approach, understand and change (1910, p: 8). Baumer (2015) includes that reflection lays the ground for deep learning and development since it involves envisioning alternatives or novelties. Based on these views we can conclude that reflection can stimulate and support (behavior) change. We use this as a starting point for the case study.

1.2 Aim and contribution

Change can thus be triggered through reflection. But how does reflection itself work? How can it lead to concrete grips for change? Could design play a role in this? Our aim is to explore how reflection for civil servants can be stimulated and supported through design. First of all we discuss theoretically how reflection works and inform about the importance of giving room for inspiration and creativity in this skill. Subsequently, embedded in a large body of theoretical work, we want to introduce a novel and more integrated way to approach reflection captured in our tool called 'Tegelen'. Herein we offer structure in the reflection process through an analogue method accompanied with a facilitator. The tool offers guidance through reflection questions and includes inspiration cards to trigger curiosity and the exploration of different perspectives. It can be used in individual as well as group sessions, focused on personal, social and societal challenges. In this paper, we present the theoretical foundation of the tool, its development, evaluation and discussion.

The qualitative research and case study presented in this paper was carried out in the municipality of Eindhoven. The municipality of Eindhoven has been working with designers since 2004, mostly in the context of societal challenges. Through the years their need has grown for internal design activities to introduce and integrate design thinking as a way of working. The first author spent a year working in the municipality as part of her Master's graduation project with bountiful freedom to explore opportunities for learning. Herein she focused on supporting life long learning in the context of personal and organisational change, through the skill of reflection. The case study clarifies that Tegelen can help people and organizations to reflect in the context of personal and organisational change. Moreover, through this paper we want to contribute how designers working in non-design environments can create engagement and change through their processes, rather than only through their designs.

2 Theoretical background

2.1 To start off: what is reflection?

Being able to design for reflection requires in-depth knowledge of what this skill entails. We approached the topic from different perspective since reflection has no unified definition (Baumer et al., 2014, p: 93; Denton, 2009, p: 838, Mols et al., 2016, p: 53). According to philosopher Dewey (1910), reflection is about looking at a matter from different perspectives so that nothing is left unnoticed. It is about having 'evidence' and reasoning why something is or isn't believed in. Sociologist Mezirow (1990) explains that reflection helps to adjust and correct biases. He introduces 'critical reflection', which entails "a critique of the presuppositions on which beliefs have been built" (p: 3). It is about assessing one's frame of reference through looking at the networks of arguments related to ethics, norms and orientations. These define one's horizons of expectations and are subjacent for how people think, behave and develop. Bay and Macfarlane (2011) expand on Mezirow and connect it to power relations and structures, since questioning and challenging these creates the ground for change. Korthagen and Vasalos (2005, p: 48) argue that 'core reflection' is often required, which taps into one's environment, behavior, competencies, beliefs, identity and mission. Denton (2009, p: 834 - 844) brings another perspective and says it is the human ability to form relations between ideas and thoughts. This results into higher-order thinking and awareness of one's own thought processes. Baumer et al. (2014) have reviewed a large body of research and include the following: "reviewing a series of previous experiences, events etc. and putting them together in such a way as to come to a better understanding or to gain some sort of insight" (p: 94). All interpretations of reflection thus entail some sort of 'looking at things' from different perspectives, by assessing the ground these 'things' are reasoned upon. This implies that reflection is a process that converges and diverges through the exploration of arguments. These definitions will recur later on in the article as they supported the design direction and decisions.

2.2 How does reflection work?

Dewey points that reflecting is an ordering of thoughts with a certain flow, leading to a unified conclusion. Through guidance and application of people's observations and senses, this type of thinking becomes possible (1910, p: 3-4). While this sounds logical and ordered, the thought process can be experienced as complex and chaotic. According to Dewey reflection requires a sort of intellectual curiosity that brings people in the mindset to explore and investigate the situation at hand. He touches upon the fact that unfortunately people lose their curious mindset as the years go by, which weakens the urge of becoming the researcher of one's understandings and beliefs (p: 9-10). Many academics explain that reflection is mostly triggered by a state of doubt or a certain dilemma that doesn't match the person's (meaning) perspective (Baumer, 2015, p: 590; Dewey, 1910, p: 4; Korthagen and Vasalos, 2005; Mälkki, 2010; Mezirow, 1990, p: 13-14). This implies that reflection can be difficult and actually requires a step outside of our comfort-zone, something that we as people generally dislike. Mälkki expands on why reflecting requires confronting our painful emotions. She concludes with suggesting that one needs to accept these feelings as a precondition to reflect (2010, p: 54-56). How the confrontation with these emotions can be supported is not pointed out and reflection remains mostly approached in a cognitive and structured manner. The difficulty of painful emotions, our decreasing lack of intellectual curiosity and the chaotic way people's mind works is not being elaborated upon. We see opportunity in addressing to trigger curiosity, emotions and stepping out of the comfort zone through design.

2.3 How is reflection nowadays supported?

Some academics make the process approachable by dividing it into phases. One is the ALACT model of Korthagen (2005, p: 49), which subsequently exists of action; looking back on the action; awareness of essential aspects; creating alternative methods of action and trial. Baumer put together a more concise process consisting of breakdown, inquiry and transformation (2015, p: 585). His research points that there is much to be achieved in the discussion and the actual design or reflection. Other models, such as the 'now what, so what' model (Rolfe et al., 2001), Kolb's learning

styles (1975) or the Onion Model (Korthagen, 2005) focus on descriptions of phases without explaining how to achieve this (curious) mindset. Existing reflection tools are mostly in the context of teaching, such as sentence starters and pyramid shapes to look at situations from different layers. Or they include card sets with very concrete questions that aren't always applicable. Regarding design that stimulates reflection, there are currently three strategies that recur most often: dialogue; information and expression driven design (Mols, 2016, p: 54-55). The strategy of dialogue driven refers to the support of reflection through the spoken or written word within dialogue, such as the well-known teacher - student or therapist setting. Information driven design is mostly about presenting one with data to trigger reflection as seen in personal informatics or the quantified self-movement. Lastly, the expression driven design strategy focuses on externalizing thoughts and feelings for example through journaling, storytelling or personal writing. Baumer et al. (2014) advises designers to grow conscious about strategies to support and encourage this. They claim "the area is ripe for work on both understanding and designing to support reflection not only as an individual, cognitive activity, but also as a social process" (p: 98).

2.4 A design space

All together these insights made the scope of our main question more specific and put forward that there is much uncharted terrain in the context of designing for supporting the reflection process specifically. It shows it is wise to approach this skill as a combination of cognitive, emotional and creative elements. People who are reflecting should be helped to think outside their standard patterns, to trigger intellectual curiosity and stimulate them to step out of their comfort zone. Furthermore it becomes apparent that a dynamic process to offer guidance in structuring the flow of thoughts and reasoning can create grips in an otherwise chaotic mental activity.

3 Process

3.1 Approach

We answer the main question based on the research and design process as a whole. Herein, designing something meaningful is only possible if end users are involved early in the process. In this case study most activities have been done through the Participatory Design methodology (Iversen and Leong, 2010; Sangiorgi, 2011). This approach allows users to express their values, while creating engagement and a common language. The literature research was followed by field research to comprehend the daily work, life and development of civil servants who are the end users in this context. It was decided to combine semi-structured interviews and co-reflection. The latter is a method for a dialectical inquiry between users and designers (Tomico et al., 2009). It exists of getting acquainted with the context through the user while envisioning a new sort of reality, by reflecting on concepts to explore the design space.

3.2 Conducting fieldwork

In total, 25 civil servants were interviewed from four departments: Strategy, Spatial Domain, HR and the Social Domain. All had different job descriptions ranging from policy making to execution, which resulted in a qualitatively rich and broad representation. First the daily life and work was elaborated upon, after which the topic of self-development and reflection was discussed. Lastly the initial concepts named 'the Reflection Room' and 'the Reflect-App' were introduced, envisioned and co-reflected. A visual mind-mapping (dialogue) tool to stimulate the discussion supported all conversations. Figure 1 shows a civil servant envisioning her scenario of use. In figure 2 the dialogue tool with the written comments can be seen. Within each interview the following topics were integrated: personal background, (daily) work, their career, self-development, support in development and reflection. The insights were thematically clustered in categories such as 'the undercurrent', 'experiences with earlier methods', (supporting) reflection and the feedback on both concepts.



Figure 1: A civil servant envisions her scenario of use.

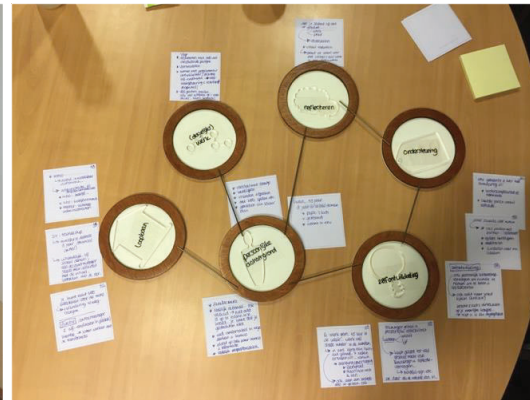


Figure 2: An interview supported with the dialogue tool

3.3 Results

The co-reflected concepts made clear that civil servants feel that group reflections would help themselves and the municipality greatly. Most employees stated that there was being jumped from innovation to innovation without truly evaluating and pondering. Currently, very little time and attention was put into reflecting and learning. Although reflecting could help them to stand still, evaluate and adjust, especially when done in a structured, guided yet flexible manner. The interviewees put forward that they saw value in individual but mostly group sessions, as this would support collaborations and exploring their new role. Several brought forward that the documentation of insights is important since most of the time things are discussed but not written down. The majority of the interviewees were in favor of supporting the process of reflection in a creative setting, accompanied with inspiration and suggestions. The fieldwork furthermore provided insights on the undercurrent that civil servants feel, including the cumbersome experiences with managers, the work pressure and the changes that came with a major reorganization two years earlier. The background of this lays in the scenario discussed in the introduction. Just as many others, this local municipality is experimenting with their new role in society and tackling the challenges of today and tomorrow. This helped to understand that whatever that was going to be designed, it had to be 'friendly' and not disruptive as many are tired of the tools and novel ways to work that have been introduced in a short amount of time.

4 A novel way to support reflection: Tegelen

4.1 The foundation of the concept

In our design we wanted to integrate the empirical and theoretical insights as described above. Baumer et al. (2014, p: 97) point that many designers who are working around the topic of reflection do not include a thorough definition and explanation of how the actual reflection is integrated within their proposed concepts. Inspired by this observation we present our concept by making more explicit connections to the insights from literature and fieldwork. It became clear that there was a design opportunity and need to create a tool that combines structure and inspiration. This tool would support creative and cognitive thinking, preferably through a generic method that includes and balances abstract and concrete elements.

4.2 Tegelen, an analogue and generic reflection tool

Ultimately this resulted into 'Tegelen', a generic reflection tool that exists of a process, reflection questions and inspiration cards. This is an analogue and interactive tool that can be used by a facilitator in individual and group reflections, depending on the needs of the people involved. Tegelen is suitable for every single topic, regardless of whether it is something from the past, present or future. The envisioned scenario of use is both for personal and organizational development. Its goal is to stimulate and support reflection by integrating a playful and dynamic yet

structured approach. The tool exists of hexagonal cards for a playful look and feel, resulting in a pallet of questions, answers and insights that appear on the table. To bridge the cognitive and creative part that is involved in reflection, we envisioned an analogue style for the process. After several explorations the hexagonal cards were divided in several colors to make distinction between phases. Both the process cards, as the reflection questions and inspiration cards were designed in the same way, printed and cut on PVC and brought together in a case. Through this, a unified and visually attractive style was developed that resulted into a coherent tool.

A session itself can last between 1 or 2 hours, depending on the available time and wishes of participants. Herein, the role of the facilitator is to guarantee an inclusive and safe atmosphere for participants and guidance in the process. The integration of a facilitator is based upon the large majority of the interviewees who put forward that they would prefer an outsider to support the session. This person is not absorbed in the matter at hand and therefore better capable to ask probing questions. Especially when something painful or very relevant comes up, the facilitator can step in to ensure that everything is discussed. Preferably, the participants are standing around the table to create a more dynamic atmosphere. In short, Tegelen exists out of a process, reflection questions and inspiration cards as shown in figure 3.



Figure 3: The tool being used during a reflection session, existing of the process (coloured tiles), inspiration cards, reflection questions and tiles on which users write their insights or answers on questions.

4.3 The process

The literature research inspired us to create a backbone upon which the reflection process is built. Dewey (1910, p: 3, 11) explains this process as an ordering of thoughts build upon each other that lead to a conclusion. This resonated with the way we as designers diverge and converge in our processes, such as explained in the Double Diamond model (2015). The process was envisioned in an analogue style to create engagement and room for creative and cognitive interaction through tangible cards. These would contain elements that would help exploring perspectives and moving towards a ‘unified’ conclusion. Furthermore it would be valuable if the gained information could be re-structured to stimulate dynamic exploration. We separated guidance into two elements: reflection questions and inspiration cards. The proposed process includes the following phases:

1. Choosing a topic and starting up: this phase is about determining a topic to reflect about accompanied by a warming-up exercise with inspiration cards as an ice-breaker to trigger dialogue and a curious mind-state (see figure 4).
2. Determining the goal: to stimulate concretizing, this phase is about choosing a goal for the reflection session to concretize and give body to the direction of the session (figure 5).

3. Making an inventory and looking back: in this phase users do an inquiry while looking back in the context of the topic. This is necessary to gain a broad and in-depth understanding from different perspectives and reasoning. See figure 6, which includes some reflection questions.
4. Looking ahead and concretizing: here, participants are mostly discovering and envisioning future opportunities and alternatives. It is the door to change as participants concretize their own discovered findings, as shown figure 7.
5. Concluding and coupling back: in this phase the door to (future) action is opened while looping back to the goal of the session. This step was implemented as the fieldwork showed that people like to know 'what they get out of' things they use, meaning that the session had to concretize towards the end (see figure 8).
6. Evaluating the session: to ensure a solid ending in which participants can leave the session with a content feeling we integrate a short evaluation as shown in figure 9.



Figure 4: phase 1 – Choosing a topic and starting up, herein users do a warming-up activity with the use of the inspiration cards by making free associations with the chosen subject.



Figure 5: phase 2 – Selecting a goal. The image includes some suggestions: 'discovering wishes & needs', 'improving & creating solutions', 'understand & develop' and 'discovering possibilities'.

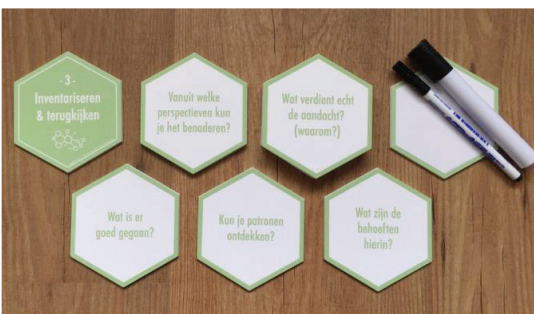


Figure 6: phase 3 – Making an inventory and looking back. The image also shows some reflection questions, the row at the bottom says: 'what went well?', 'can you discover patterns?' and 'what are needs herein?'



Figure 7: phase 4 – Looking ahead and concretizing. The top row of the included questions states: 'can you think around possible obstacles?' and 'what has the most priority?'

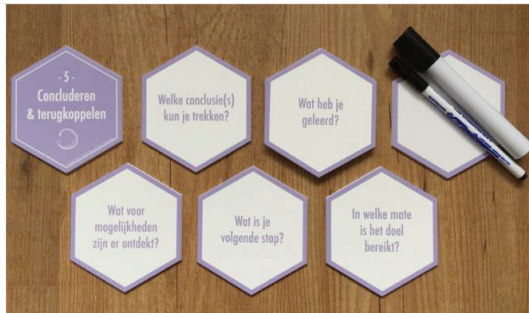


Figure 8: phase 5 – Concluding and coupling back. The bottom row of questions say: ‘what kind of possibilities are discovered?’, ‘what is the next step?’ and ‘to what extent is the goal achieved?’



Figure 9: phase 6 – Evaluating the session. The included questions ask: ‘does something need to go different next time?’, ‘how did you experience this session?’, ‘to what extent was it a successful session?’

4.3.1 The reflection questions

The phases include suggested reflection questions to support participants in approaching the subject from different perspectives and building reasoning (see figures 4-9). They were inspired by Dewey’s observation (1910, p: 8-9) that this requires training mental habits through methods of inquiry, suspended conclusions and methods to explore situations. Mezirow (1990) points that making meaning and sense of experiences is about making interpretations of them (p: 1). This inspired us to support people in creating these clarifications and building of insights. Korthagen and Vasalos (2005, p: 63-64) expand on the importance of taking time to investigate, analyze but also envision future scenarios. Denton (2009, p: 841) points that Socrates took time to recollect experiences. This supported us to envision general reflection questions, which become relevant through the topic. Depending on the available time and size of the group, the facilitator decides how many questions each participant can select and discuss. Every phase ends with selecting the most important insights.

4.3.2 Inspiration cards

The decision for inspiration cards comes from our incomprehension that many writings around literature revolve around cognitive elements, while emotions are equally important. Through several expert meetings about learning and coaching we decided to offer different methods to support inspiration and approaching the emotional side. Some people are triggered through textual ways, while others prefer photos, illustrations or materials. Subsequently, they would act as softening the painfulness of reflecting (Mälkki, 2010; Mezirow, 1990) since they offer a head start to discuss. Moreover, the inspiration cards would stimulate talking about emotions and supporting dialogues about the undercurrent. Their usage is both to answer the reflection questions and to explore alternatives or new scenarios. The inspiration cards include the following triggers: photos, illustrations, textual and haptic styles. The photos are chosen intuitively to stimulate people to talk about their feelings. The illustrations include doodles that represent different scenarios and are less explicit than the images. The textual triggers are verbs and sentences that are directed and more in the provoking area. Lastly the haptic set contains materials that exist of different structures.



Figure 10: Some example of images from the inspiration cards. They range from concrete images such as 'people making music' or 'a bird in a cage', to abstract ones as 'street stone structures'.



Figure 11: Several examples of the illustrations, as part of the inspiration cards. Some are about people, others about situations, objects or activities.



Figure 12: Some textual triggers as part of the inspiration cards. They include words as 'connected or 'promising' or statements as 'what a nonsense!', 'can we take it a bit slower?' or 'I think ... should happen'.



Figure 13: Several examples of the haptic set. Some are soft or sturdy, others more stretchable or transparent.

5 Evaluation

5.1 Setup of user tests

The tool is designed through two iterations, that are both qualitatively tested in context as well as evaluated with experts in and outside the municipality. The tool is largely left unchanged content wise in the second iteration, but is mostly adjusted in the visual style and structure of the process. All user tests were filmed with consent and ended with a group discussion around their experiences, usability and improvement points. The first iteration was tested during an individual session with a civil servant from Strategy, a group session with four employees from Personnel & Organization and finally a group session with eight civil servants from an intervention group of one of the company coaches. All participants were completely novel to the process and concept. The tool was also tried out by one of the authors and evaluated with experts on reflection and the design of tools. The second iteration was tested during two group sessions: one with a group that was familiar with the first iteration and another that had a fresh experience with it. The first author was the facilitator in all user tests. During all sessions the topic of the reflection was decided upon agreement in the group. The topics that were chosen are: a collaboration problem between a civil servant and her manager; budgetary challenges and the visibility of the related department; supporting employees to become more conscious about their self development. The video recordings of all sessions and notes from the discussions afterwards were analyzed and categorized in 'overall experience on supporting reflection through Tegelen'; 'reflection phases and questions'; 'the inspiration cards' and the 'role of the facilitator'.



Figure 14: Iteration 2 in use during a group reflection session with civil servants from the HR department.

5.2 Results

5.2.1 The overall experience and process of Tegelen

The evaluation first of all shows that Tegelen supports and stimulates reflection. We conclude this based on self-reported experiences from participants on individual written feedback forms, group discussions after sessions and observations by the facilitator (through video documentation). Civil servants experience that Tegelen offers guidance in a structured, yet dynamic manner. Like many others, participant 7 for example mentioned, “I like how the combination of everything has a playful side to it. The questions and inspirational cards helped us to talk about the undercurrent, which should happen more often”. The majority put forward that running through the process offers them broader, more in-depth and alternative ways to approach the topic. P4 (iteration 2) for example explains this by saying: “I think this tool makes it easier to reflect, I like that we have to put cards on the table and write reasoning.”

One of the results is that the outcome of the session greatly depends on the concreteness of the chosen topic. P8 (iteration 1) rightfully noted, “I wonder what difference it makes if we are very abstract from the start or very concrete as the start influences everything else.” Indeed, some sessions remained very abstract while others ended concretely with a communication or action plan, while others resulted into takeaways for a future scenario or insights that were taken to a meeting. When the topic at hand is a present-day situation or something from the past, the process naturally evolves in a reflective mindset and process. In this scenario most time is spent in the ‘inventory and looking back’ phase. If the subject is something that will happen in the future, the session logically turns more into a brainstorm with an emphasis on the ‘looking forward and concretize’ phase.

5.2.2 Reflection phases and questions

The combination of reflection questions and the free use of inspiration cards furthermore stimulate making new connections to gain insights. Participants experienced that the reflection questions helped to explore and investigate the topic from different perspectives. Similar comments such as the one of P3 (iteration 1) was heard quite often: “Shuffling through the reflection cards made me truly stand still and think about whether the question was relevant”. P2 (iteration 1) added: “Some questions were not relevant at all, while others triggered me to think in new ways.” Setting a goal was experienced as very helpful because it gave body to the session and supported drawing a conclusion. Furthermore it turned out to be a relatively easy way to decide whether the session was

a success, something that participants appreciated. Writing down arguments was experienced useful to maintain understanding of the discussed things. Many mentioned things as the comment of P1 (iteration 2): “I see great value in writing things down as we never do that, what we discuss always remains floating in the air.”

5.2.3 Inspiration cards

The sessions showed that the inspiration cards support in making the unspoken undercurrent apparent while triggering thinking outside standard thought patterns. P4 (iteration 1) mentions that, “It really touches upon the stuff that is behind the surface... normally we stay in the verbal side, but this triggers other things”. Another statement mentioned multiple times is similar to what P1 (iteration 2) says: “the inspiration cards really supported me to think about and include my feeling around the topic, I found that very helpful”. Halskov and Dalsgard (2006) point that design artifacts, such as the inspiration cards, can become part of the dialogue as means to express and focus. They include that bringing together unrelated elements is an important factor in making cross-links and sparking inspiration while bringing a creative exchange between participants in their workshops. Their insights resonated exactly with our experiences in the effect of the inspiration cards. For example, P10 (iteration 2) states, “I really like how the tool triggers in so many different ways, I don’t think I would have had the same ideas and tinkering without them (the inspiration cards)”.

5.2.4 The role of the facilitator

The user tests clarified that the facilitator plays an essential role in the overall (group) process and shouldn’t be excluded in the approach. P5 (iteration 2) for example said: “I found it useful that you kept us sharp and helped focusing, you ask through and involve us all”. Within individual sessions the role of the facilitator also include another aspect. This participant mentioned, “your facilitation helped me to stay grounded and not fall into a monologue with myself”. These experiences showed that within group session the facilitator mostly focuses on supporting the process and ensuring involvement, while in an individual session it is added with being a reflecting partner. This implies that especially in individual scenarios, the facilitator should remain professional yet sincere, without losing track of time or the actual guidance.

6 Discussion

6.1 Impact of the reflection tool

In general, participants put forward that they feel empowered because they obtained more overview, understanding and different perspectives around through the use of Tegelen. Moreover, it helped them to create grips to change a situation or do things differently next time. The goal of the tool however is not only to offer participants support during a session itself, but to have an impact afterwards that ultimately results in behavior change. This would need a longer trajectory of reflection sessions. Herein participants will need to be stimulated to implement the gained insights in their daily life and work. It is expected that the integration of a tool like this would ask for support from top-down as well as bottom-up in the organization. We believe longitudinal use and research is required to discover how the insights can be implemented in the related context. A digital platform might help to create a database and (re)collection of topics and outcomes of the reflection sessions. In the remainder of this paragraph we discuss the aims stated in the introduction and the arisen opportunity around sociality in reflection.

6.2 Embedding academic insights to ground design and built trust

The crossroads of the academic and the ‘practical’ world such as governmental organizations forms an interesting place to experiment and strengthen a reciprocal exchange. The literature supported us to obtain in-depth understanding of what reflection entails and how there could be designed for it. Subsequently, it informed about requirements and the opportunity to integrate the triggering of curiosity, feelings and creativity to support reflection. Sharing and communicating the (academic) pillars on which our concepts are built, can support us to validate and improve. From the practical

perspective of designers working in public contexts, grounding and validating work is something that always remains a challenge. This counts especially in the more social, transformative side of (design) trajectories. The fact that most decisions were both theoretically and empirically supported helped explaining why and how the tool was designed. We noticed that this helped participants to embrace and trust both the concept as the overall process. This is an essential aspect to create the foundation to implement concepts into their related context. In essence, it becomes much easier to ground and validate our work if we have foot to stand on, especially as it can be cumbersome to test the actual impact of our proposed designs.

6.3 *Creating engagement through the design process*

Empirical research is a valuable mechanism to create engagement and inform non-designers in our process. Such activities involve stakeholders from the first-person perspective, which creates understanding and involvement. We experience that fieldwork provides valuable moments to let non-designers experience designerly ways to approach and tackle challenges. It brings them on board of a journey where the end result may not be visible but the road towards it is sincere, contextual and inclusive.

6.4 *Sociality in and through reflection*

Although it was not a specific aim, Tegelen supports both individual and group reflections, of which the latter is quite unique. Most existing methods are based on a 'one to one' or on an individual setting. The user tests offered ample insight that reflecting together has great added value, especially in situations of team collaboration or the exploration of a vision or work method. We observed that participants build on each other's arguments, which increases mutual understanding throughout that process. It supports creating a communal language by sharing (personal) perspectives, leading to connection and engagement between participants. This indicates that sociality created through group reflection can form an essential support for the approach that is required in multi-stakeholder collaborations.

7 Conclusion

We began this paper by highlighting that the societal challenges we are facing require a change in mind state and behavior to create public engagement in the whole public sphere. Herein, reflection can stimulate consciousness and empowerment leading to alternatives, insights or novelties. It is a skill that is applicable on personal, organizational, and social as societal spheres.

We contribute to the field of designing for reflection by informing about the importance of bridging the cognitive, emotional and creative aspects that are all equally important within this skill. Our interest to explore how reflection can be supported through design resulted into Tegelen, a tool that can be used in individual as well as group sessions. With the concept and the road towards it we have shown a novel way to approach and tackle reflection by bridging questions with inspiration and guidance with a dynamic method. It is a balance between offering structure and stimulating a dynamic flow of exploration and argumentation. The experiences of users put forward that the tool supports empowerment, mutual understanding and grips to tackle the topic at hand. Longitudinal usage and further research is needed to explore the potential of Tegelen to support to reflection and stimulate behavior change in the long run. Through the process and the design of Tegelen we show that individuals, employees and organizations would benefit from a structured support in reflection. Moreover, we have shown that group reflection can lead to sociality, mutual understanding and a shared foundation between participants. This can support the engagement that is required for (local) multi-stakeholder collaborations to approach challenges and discover roles. We believe that reflection is a skill that deserves more attention in personal and organizational change, and hope that Tegelen can contribute supporting this.

8 References

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About the Authors:

Yasemin Arslan is a social designer with a master in Industrial Design. She works in the public domain and has a passion for transformation through empowerment. Her (research) interests include personal and organization development, reflection and the crossroads between design and anthropology.

Ine Mols is a PhD candidate within a joint degree program of the department of Industrial Design, TU/e and the Faculty of Engineering and Information Technology, UTS Sydney. Her research interests include media interaction, everyday habits and design for personal reflection.

Caroline Hummels is professor Transformative Qualities at the department of Industrial Design, Eindhoven University of Technology. Her activities concentrate on designing and researching transformative practices within socio-technical systems, with a focus on sensemaking, ethics, aesthetics, embodied interaction and social resilience.