Low Threshold Service Design: Desktop Walkthrough

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Abstract

This paper introduces the first academic characterisation of the *desktop walkthrough* technique. Desktop walkthrough is considered here as a service design technique using a collaboratively built miniature environment to construct knowledge about a specific service. It is further examined as a technique for rapidly exploring and designing a service concept. The analytical lens of the paper is outlined from socio-cultural theories on human development where any human action is developed from, and emulated by, social interactions and the intellectual and physical artefacts herein. The analysis shows that desktop walkthrough enabled teams to design a holistic service journey with low threshold usage, and provided a means for exploring and designing the complexity of customer journeys and the backstage organizational processes.

KEYWORDS: desktop walkthrough, design games, case study, activity theory

Introduction

A core of service design is to pay attention to whole services (Blomkvist, 2014; Parker & Heapy, 2006). However, leading service providers often fail to deliver superior customer experience due to inadequate attention to the customer journeys (Rawson, Duncan & Jones, 2013; Wright, 2012) and the company's aligned organizational processes. To approach this complexity of a service, service designers often make service blueprints (Bitner, Ostrom, & Morgan, 2008; Shostack, 1982) in the analysis and (re-)design of a service. The service blueprint has provided service design with some central concepts based on a theatre metaphor of service: the onstage, backstage and supporting process. Mapping out the different stages in a blueprint, helps the service designers to develop a coherent proposition and link different elements of a service together (Polaine, Løvlie & Reason, 2013).

With today's growing business interest in service design and design thinking (Harvard Business Review, 2015), there is an increasing demand for simple tools that rapidly and easily help decision makers and non-designers to (re-)design the link between onstage and backstage processes. In this paper we therefore suggest desktop walkthrough as a technique particularly useful for this context of use.

Despite high familiarity with desktop walkthrough within the service design community, there is still few empirically-based studies that are based on solid theoretical foundations for analysis. In this paper, desktop walkthrough is considered as a *collaboratively* constructed miniature of a service, and of which a set of artefacts (e.g. LEGO®) is used in the construction. Framing desktop walkthroughs as a collective activity means that the output of the activity is seen as a collectively constructed and shared artefact – the service representation - rather than as a result of individual contributions. Meaning, understanding, knowledge, ideas etc. emerge as the result of interactive, collaborative processes that are tied to the situation, to the participants' expertise and experience, and other physical artefacts available.

To approach a deeper understanding of desktop walkthrough, we suggest socio-cultural perspectives and activity theory as a useful analytical lens. We use a socio-cultural lens here to understand and describe the work of two business teams using desktop walkthrough in their process of designing for new customer journeys to be applied in future operational practices. As such, the paper covers a gap in the service design literature, and the same time is a contribution to a broader discussion on appropriate analytical lenses for the purpose of empirical analysis of service design processes.

Desktop walkthrough

Desktop walkthrough is a well-known technique within the growing discipline of service design. Desktop walkthrough has been described by service design practitioners as "very simple exercises in imagining a service experience using small, hand sized toys. A typical desktop walkthrough involves a customer, a member of staff, an environment and some paper touch points." (Engine, n.d.). These desktop artefacts can be considered representations of servicescapes (Bitner, 1992). LEGO pieces or other small "figurines" (Segelström, 2013) are often used to represent people and other elements of the service, allowing exploration of interactions people have as they move around the servicescape. This provides the participants with a visual model where events can unfold and service processes can be simulated. This model can be seen as a representation of the service that is being designed (Blomkvist, 2014). The service representation is not metaphoric, it takes the place of the imagined future service as an artefact developed in processes where participants elaborate, play with and test it. It is an abstract version that is open for interpretation and collectively constructed meanings (Buur & Matthews, 2008; Gaver, Beaver, & Benford, 2003). However, what the different stages of a walkthrough contains and looks like are not decided beforehand and need to be developed in the situation of the activity.

Desktop walkthrough is part of a group of techniques that has been labelled *ongoing* (Blomkvist & Segelström, 2014). Ongoing techniques dynamically and interactively change over time and only exist during an activity, and examples include roleplaying and service enactments. These techniques have a specific set of cognitive benefits during design: they are shareable objects of thought, facilitate re-representation, support inferential reasoning, and act as more natural representations of structure (compared to mental representations). Another group of techniques in design uses *definite* representations that, unlike ongoing techniques, serve as persistent point of reference. Definite techniques such as customer journey maps, service blueprints, and storyboards complement the ongoing techniques by being shareable objects.

Desktop walkthrough exists within a larger context of design techniques that utilize artefacts to coordinate design activities (for early examples, see Ehn & Kyng (1992) and Sanders (2000)). However, desktop walkthrough is best understood as a specific type of design game. While there is no clear definition of design games (Eriksen, Brandt, Mattelmäki, & Vaajakallio, 2014), they are often described as ways to stage interaction and exploration within a frame of rules and tangible game pieces (Brandt, 2006). Design games have been

proposed as an alternative to other business model innovation approaches that are based on rational processes and causal reasoning (Gudiksen, 2015). Games in more general terms have been described as consisting of actors, rules, and resources (Klabbers, 2003). Unlike many other (design) games, desktop walkthroughs do not have a set of rules about how or what to (not) do during a game. However, this does not mean that desktop walkthrough cannot be described as a game. In terms of rules, there are two categories of games: allotelic games, where players are restricted by rules and defined goals, and autotelic games, where players are free to act according to their own motivations and goals (Klabbers, 2003). Hence, desktop walkthroughs can be understood as autotelic design games, where a team collaboratively constructs the setting and events.

Unlike many other design tools, desktop walkthrough (as a collectively constructed and shared artefact) is not a boundary object (Star & Griesemer, 1989), since it is not intended to be used across sites as an object that moves between communities of practice. It can gather people from diverse backgrounds and provide a basis for collective, materially mediated and higly situated activities.

When LEGO is used, desktop walkthrough does not require any specific knowledge or skills to get started. Walkthroughs can be set up and introduced quickly, and participants have somewhat equal possibilities to contribute. While the technique does require a starting condition of some type (a scenario, a problem, a question etc.) it has no end condition. The outcome is an abstract, miniature version of a service and the knowledge generated during the activity. The time allotted for the task influences the end state. Desktop walkthrough does not have any rules for what should be represented, nor for e.g. number of participants or length of sessions. The participants can act as specific users (e.g. customers, employees and other actors in a service) and/or things, and can experience the service from their specific level of knowledge and specific needs. Desktop walkthrough can potentially be used in many different ways. In this paper we focus on its role and function in group activities.

Theoretical lenses of analysis

Many theories are useful as analytical lenses to study and structure the collaborative activity of desktop walkthrough. Situated and distributed cognition has recently been used to analyse service design tools (Blomkvist & Segelström, 2014). An associated and somewhat complementary perspective, is given by socio-cultural theories of human development, which has been suggested as a useful perspective for service design (Kaptelinin & Uden, 2012; Sangiorgi, 2009). According to socio-cultural theories, any human development is mediated by social interaction and the intellectual and physical artefacts used and developed herein (Vygotsky, 1978; Leontiev, 1983; Wertsch, 1991; Nardi 1996; Engeström, Miettinen & Punamäki, 1999; Säljö, 2005). According to Säljö (2005), development of any artefact is based on people's particular needs, and is often based on people's creativity and innovative capacity. This means that an artefact is not a dead or static object, but is continuously (re-) developed and used within specific socio-cultural practices.

The artefacts are understood not only as physical tools (e.g. a mobile phone or a PC), but also as different types of intellectual artefacts (Vygotsky, 1978) like natural-, scientific- or business languages. Any artefact has embedded conditions that determine how a human action is performed as well as the outcome of the activity (e.g. Leontiev, 1983). The unique qualities of an artefact (such as e.g. a Lego brick) thus influence the outcome and experience of the mediated activity (Fjuk, Nurminen, & Smørdal, 1997; Berge & Fjuk, 2005).

Engeström (1987) presents an alternative model in order to analyse the social phenomenon of the activity, including rules of communication and division of labour. The model is illustrated in Figure 1.

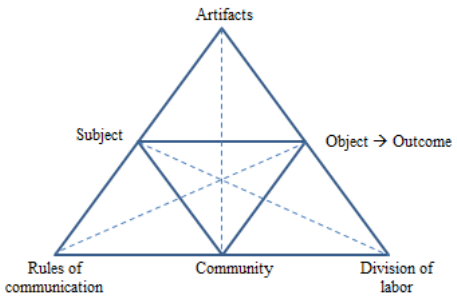

Figure 1: Engeström's model of human activity

The individual's (subject's) action towards the object of the activity is affected by three factors: The artefacts applied, the community s/he belongs to in terms of the embedded rules of the community (laws, norms, traditions, etc.) and the division of labour in the community (roles, coordination procedures, etc.). The subject's relationship to the community is mediated by rules and the community's developed and available artefacts. The community's relationship to the object of the activity is mediated by the division of labour. Used as analytical lens, it is important to consider the different parts of the activity system as interconnected (Fjuk, Nurminen & Smørdal, 1997).

The case

The case is a multi-national telecommunication company, which has service design as key capability for delivering services that add customer value in the marketplace. The unit of analysis is a business team's processes of prototyping a customer journey given a specific event in the customer's life, as well as the customer journey's alignment of backstage processes. Due to the participants' daily responsibilities (C.f. Table 1), the secondary object was to test the value of desktop walkthrough. Two teams constituted the basis for the analysis. The participants of the teams were leaders and decision makers, and with a specific responsibility of developing the capability of service design in the different subsidiaries of the company.

Table 1: Description of the participants

Team 1: international	Team 2: national
P1: Director of service innovation	P5: Service design consultant
P2: Head of service design	P6: Organization and change
P3: Designer of next generation service	management director
experiences	P7: In-house service design expert
P4: Service design consultant	P8: Head of service design
	P9: Customer journey expert
	P10: Director of service design

The desktop walkthrough method technique was introduced for 30 minutes before the participants were randomly divided into two smaller teams. The original scenario for the desktop walkthrough was: a customer's iPhone is broken, she goes to an operator store and wants it repaired. The teams ended up being different sizes, with four participants in Team 1 and six in Team 2. By chance, one of the teams had a mix of nationalities (i.e. representing different subsidiaries of the multi-national company) and the other had members from Scandinavian countries. Two design consultants participated (one in each team).

The teams worked on two separate tables in the same room. Both teams selected Lego-bricks from a big box, and on each table there were a couple of big, flat Lego plates to start building on. Due to the geographical diversity of Team 1, they chose to speak English, while the other team spoke Scandinavian languages. The participants had no previous experience

from desktop walkthroughs. The data material is ~4.5 hours of video showing how the teams used desktop walkthroughs. Both walkthroughs were video recorded by fixed cameras aimed at the two tables where the teams worked. Excerpts have been transcribed and translated when needed. The researchers observed and took notes while attempting to register all facets of collaboration between participants, their emotions, speech patterns, and their gestures in relation to the artefacts and each other.

Analysis

The teams' collaborative processes of creating a service representation is analysed by using Engeström's triadic model of human activity (Figure 2) to clarify the analysis framework. The subject is the individual leader or decision maker who is participating in the team of designing a good customer journey. The primary motive is to construct a new service representation that can be used in the daily business. The artefacts that mediate the individual participant's activity towards the customer journey design, includes LEGO bricks, post-its as well as business- and expert language. The vertical dotted line indicates that the participant actions towards the team also is mediated by artefacts that are available for the desktop walkthrough. Furthermore, the relationship between the individual participant and the team is mediated by different rules in the team, such as specific conditions and operational practices in the given scenario or marketplace.

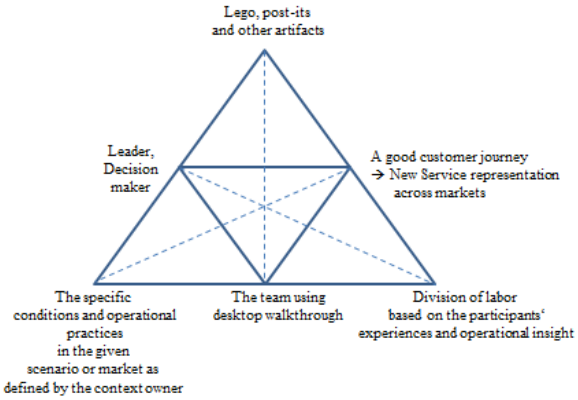

Figure 2: Engeström's model of human activity applied to desktop walkthrough

In each team, one participant was implicitly appointed context owner and was setting the initial rules. Team 1 placed the scenario in one specific market of the multi-national company and of which was the home country of P2. It was thus natural that P2 was responsible for informing the others about the context and local rules, solutions and possibilities. In Team 2, P8 had a similar position, because P8 was part of the service development team for the service that the team was working on. Moreover, the relationship between the team and the object of the activity (a good customer journey), is mediated by division of labor such as different experts areas, positions in company, etc.

Results

The results have been divided into four stages. The stages represent shared characteristics of the observed desktop walkthroughs, but no stage was the same length (between the teams) and the activities constantly shifted and overlapped, with elements from the various stages (except from stage four). So, rather than seeing the stages as something that will naturally occur in any walkthrough, they are used to structure the results and characterize the activities that took place during the walkthroughs. Within each stage we use Engeström's model as

lenses for understanding and discussing the artefact- and socially constructed service representation.

Stage One: Exploration – defining the scenario

During the exploration phase the team members defined a realistic scenario to focus on. Team 1 decided to focus on the given and original scenario, and started adding details to the scenario: a young woman was visiting an outdoor cafe in a park with good friends, she received a call, she left the café table, and while she was happily waving to her friends she dropped the phone on the asphalt. In her desperate situation of the broken front of her new iPhone, she discovered that it was possible to use the phone and managed to find an operator store nearby. The team used the customer's emotional feelings and needs in the particular event as the foundation for the walkthrough.

Team 2 decided to focus on another scenario than first given. The focus of team 2 was a service that was currently being developed in one of the subsidiaries. The service concerned the process of becoming a mobile subscriber in an operator store, and focused on what happened after a customer had decided on a specific phone. Team 2 decided to build a store, a repair centre and a home as important locations in the customer journey. The decision to build these touchpoints was rapidly agreed upon, without negotiations or arguments.

At this stage, the Lego-artefacts were chosen as what they represent, such as trees, park benches, buildings and cars. Thus, the actual artefacts available, such as trees, mediated the team's collaborative construction of the scenario. For instance, Team 1's decision to start the walkthrough in a park was based on one of the participant's creative activity of using Lego-trees.

P4: "where does this happen?"
P2: "I have this nice tree. Can it be in a park?"

In this way, the available artefacts mediated shared understanding of the content of the scenario. This influence could be observed throughout the walkthroughs, and went continuously from the participants to the service representation and back:

P8 (while pointing to different places on the floor of the store): "the thing is- it's most often a queue-"
P8 (picks up a Lego figure): "then we must have a queue here"

As a consequence of the queue, the employees in the store must move away from the counter and have some more secluded time with the customers. Hence, P8 was triggered to re-examine the problem. In this way the collaboratively constructed artefact – the scenario – become both an intellectual artefact for the individual (P8) knowledge construction, as well as communicative artefacts amongst the participants going forward in the process.

As the walkthroughs progressed, the teams became more and more purposeful, and the participants started searching for specific artefacts or developing new artefacts of the service with specific functions.

Stage Two: Constructing the shared organizational context

By asking the context owner various questions, the teams reconstructed a specific organizational context. Parts of the context were represented with Lego, other parts simply discussed. Both teams focused their construction on the stores at this stage.

At one point, P2 had an idea but was unable to articulate it to the team. After some explaining using references to Lego pieces, the team seemed to be able to understand P2. P1

considered different options for how to represent the idea, and wound up suggesting a door (Figure 3), asking "so can this one be…?" The idea was to have a self-help booth where customers could perform parts of the service on their own. In this case, the Lego artefacts helped illustrate something that could not be otherwise articulated by the participants. So, even though they were not completely sure what it was, they decided to represent the unknown. Thus, the artefacts available – both individual Lego-bricks and the service representation - became important mediating artefacts for articulating own reflections and for creating a shared understanding.

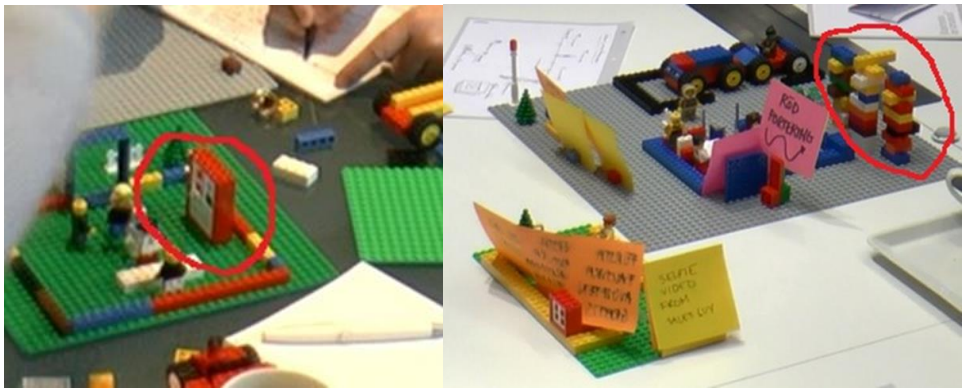

Figure 3 (left): A representation of unknown service element. Figure 4 (right): The supporting processes represented as Lego staples.

During stage two the teams were creating boundaries for themselves. Team 1 limited the scope in terms of e.g. phone brand, number of employees in the store, the extent of help the customer could receive, and other limitations. These limitations were not part of the scenario, but was rather constructed as rules that mediate the individual actions in the walkthrough processes. Thus, new rules were developed throughout the process. Team 2 imposed even greater limitations for themselves, by making the backstage systems and everything that happened before the customer chose their phone, out of scope for their process. Instead of constructing different artefacts of the backstage systems, they represented the backstage systems by three staples of Lego bricks, Figure 4.

Stage Three: adding complexity with new artefacts

Stage three was most time consuming for both teams, and started when the main scenario was settled and the main constructions were finished. The participants were perfecting the service by adding details and using post-it notes for describing specific functions or behaviours in the service. The participants also added business goals at this stage, such as how many days the customer should have to wait for the repaired phone (Team 1), or how many minutes a specific process was allowed to take (Team 2). More and more information was added to the service representation, and the complexity of the service increased. Most notably, the teams wrote the information on post-it notes and attached them to specific places in the service representation, see Figure 4. Even quite simple information, such as remembering the time-constraint for delivering a repaired phone was distributed onto the service representation rather than kept in memory by the participants. In this way, the post-it notes became intellectual artefacts that mediated articulation of individual thoughts and knowledge construction, but at the same time artefacts for inter-personal interactions in the team.

Furthermore, P3 proposed that they should focus on the emotional experience of the customer. The other participants provided suggestions for different customer feelings. Each time these aspects came up, instead of providing the generated list of emotions, the participants referred to P3 who became a repository of this knowledge and defined new rules for mediating the relation between P3 and the team.

At this stage, the discussions also started to include backstage functions and strategic

decisions. Team 1 created a business partnership of the service that was in charge of delivering the repaired phone, and that also worked as a Wi-Fi hotspot (many customers did not have access to mobile internet in the market) and the business partner could also help the customer download all the data that the customer had on the phone before it was destroyed. Also, different perspectives were weighed against each other: Team 1 discussed the customer perspective and the company perspective, and what information the different stakeholders would need. The customer perspective was also discussed in terms of what expectations they have in relation to when the phone should be delivered.

Changes of service representation

A number of changes occurred throughout the walkthroughs, but mainly during Stage three. In Team 1, the customer was enjoying the company of her friends in the park initially. The friends were represented by three Lego figures. After the accident with the dropped phone the scenario changed from the park to the operator store, and the friends became customers instead.

The servicescape was also not considered static. To accommodate for a new element in the service (an extra employee in the store), P4 tried to rearrange the current space. However, P4 soon realized that there was not enough space and increased the size of the store instead (Figure 5).

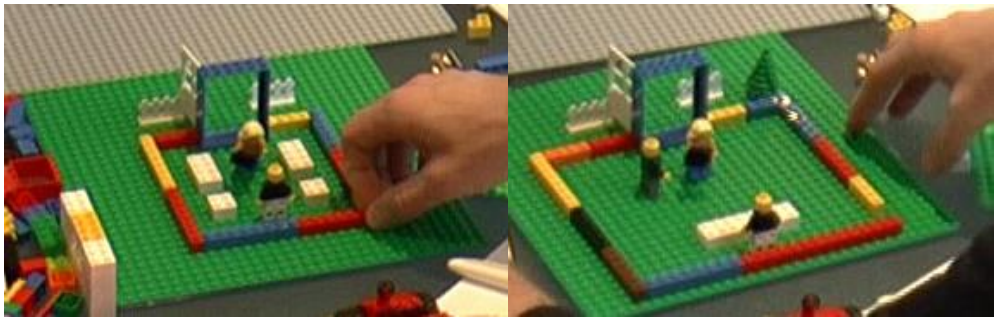

Figure 5: Team 1 increased the size of the store.

Some of the Lego pieces available had natural functions, for example, a door. When Team 1 needed to represent a new element, the team used a door. The door was no longer something you could walk through, but had changed function. Thus, the representation was not custom built to look like the artefact it represented, but the door was rather attributed with a new function that provided meaning for the participants (i.e a self-help booth).

Attributed meanings were only partly shared in the team. Some discrepancies could be identified. For instance, in relation to the previously discussed self-help booth, P3 suggested that the employees could help the customer, from the other side of the booth (the Lego door):

P3 (pointing to the booth) "the support guy"
P1 (also points to the booth) "oh yeah, yes, the support guy"
P1 "okay"
P2 (points to the booth) "this is self-care"
P3 "mhm"
P2 "there is no guy"
P1 (points to the booth) "no, this is self-service"

This illustrates that even though some information is shared, there are discrepancies in the shared understanding. The individual participants thus used the different artefacts to mediate common understanding, and then to re-construct the service representation by correcting and adjusting the shared understanding.

Stage Four: Presentation and clarification understanding

Stage four was the presentations of the teams' outcome; the service representation. During this stage the new service was played out by the original context owner, but in a new version of the service that the participants had never walked through in one coherent sequence. It also revealed misconceptions, such as post-it notes that could not be understood:

P2 (looking at a post-it) "why is this here?"

During this stage, the service representation changed significantly compared to previous stages. The use of artefacts became more playful. Presenters used the figures to show the movement of the customer (Figure 6), they added personal comments about what happened to the customer and how she felt at the moment. The customer journey was enacted more as a coherent service, compared to before when only short sequences or behaviours were enacted.

Figure 6: Using a figure to enact the journey.

The customer journeys were not only explored from a customer perspective, but also considered the role and experience of employees and other stakeholders. For example, Team 1 talked about having a competition between employees, but changed that to being a competition between different stores instead, because it was a "healthier" form of collaboration. The teams talked about backstage solutions also during the presentations, but generally focused on the customer journey. Some elements that Team 1 talked about as backstage elements were: business intelligence (BI, to predict time of delivery of new phone), customer relations management (CRM, different ideas about how to collect data about the customer), self-service, net promoter score (NPS), and self-service ratio. This means, the service representation mediated new understanding between the presenter and the team, but also across the two teams.

Discussion

In this paper, we have used socio-cultural perspectives – or more specifically the activity model of Engeström (1987) - as analytical lens for understanding the social activity of desktop walkthrough. Socio-cultural theories and Engeström's model of human activity is a useful lens for the study of desktop walkthrough due to its focus on the socially- and artefact-mediated activity. The activity model has helped us to structure the complexity of desktop walkthrough in terms of how the different aspects of the model - artefacts (e.g. building blocks, figures, post-its), the rules of communication (e.g. specific conditions and operational practices in the given scenario or marketplace) and the division of labour (e.g. experts areas, position in company) - mediated the participant's actions towards a common outcome of a service presentation (a customer journey, aligned backstage processes). It has further helped us to explore how the different aspects of the activity model continuously developed throughout the desktop walkthrough process, such as e.g. how the participants

co-create and change the rules of communication as well as how the artefact changed function. The activity model was thus valuable for structuring the complexity of analysis and for understanding the artefact- and social mediation of desktop walkthrough.

The analysis also showed how the desktop walkthrough in itself is situated in a social and cultural context with participants that have their individual motives and intentions for the collective activity. The walkthrough unfolded without clear boundaries, stimulating the participants' creative and innovative thinking, and thus making each journey unique. The desktop walkthrough allowed the participants to dynamically influence and change the events. It is important at the same time to consider that much knowledge that was generated was tied to the context of use, and distributed amongst the participants of the walkthrough. Hence, knowledge from desktop walkthrough sessions will have to be documented some way to be useful also outside of the team who worked with it. Much information about the walkthroughs was lost between the work in the teams and the presentation of the service. The knowledge is tied to the participants and their experiences rather than to the representation, as with any ongoing technique.

Concerning the fact that the participants were non-designers, but leaders and decision makers, they were generally satisfied with the technique and the outcome. When asked, the participants said it was fun and meaningful. They also said that they mostly used the building blocks to visualize what they were talking about. However, they felt that they did not have time to evaluate whether they were working on the right thing, and that the technique could have been much more effective if the facilitator had pushed the participants to enact more and use the LEGO more. Furthermore, they emphasized that desktop walkthrough was both a faster and a better way than simply discussing or sketching, and implied low threshold in use. This was consider vital in an operational practice of non-designers.

By acting as a representation of places and processes, the desktop walkthrough makes the service tangible and available for collaboration and coordination. In our case, the processes of designing for a coherent customer journey experience increased the visibility of the business leaders' responsibilities and metrics. On the other hand we can conclude that in team collaboration with desktop walkthrough there is a danger that team members will avoid looking into the "black boxes" – into what they do not think they have a sufficient knowledge of – or influence on. The tasks to visualize something highly complex and ambiguous may lead to not building anything, or to very abstract representations. However, this effect also puts focus on what the participants lack understanding of, which can be a beneficial practice for an organization. The "black boxes" can clearly signify the areas of organizational understanding that e.g. have to be further developed

Self-imposed limitations. During stage 2 the participants added limitations and in stage 3 they added goals (e.g. time limit for repair and for waiting, in group 1 and 2 respectively). These limitations can act as triggers (Eriksen, 2014) or drivers for creativity and drive the walkthrough forward if the groups also consider how to overcome limitations and achieve goals. Placing some restrictions on what is possible and introducing things like delays, mistakes and failures can be a good way of challenging and improving the result of desktop walkthroughs from a facilitation point of view. Having participants with domain-specific knowledge can enhance conversations and explorations during the walkthroughs. The (informal) team leaders both had knowledge about the market and/or service that was being developed, thus improving the quality and practical usefulness of the designed service concepts.

Conclusion

Desktop walkthrough can be seen as a distinctive type of design game. It is distinct from most other design games in at least two ways: a) it acts as a representations of a future

service with some functional and/or physical equivalence, and b) it lacks restricting rules (it is autotelic). The material used influences the activity but does not predict outcomes of desktop walkthroughs. It can be used to explore constellations of service resources and interactions across supporting processes and support alignment of the service frontstage and backstage.

The result of a desktop walkthrough is not automatically shareable since the activity is situated and the outcome unique. Hence, the resulting representation is not a boundary object – something must be done in order to summarize and document the knowledge generated by the desktop walkthrough and make it shareable. The result of a desktop walkthrough depends on the way it is used, but on a general level can be said to include the interconnected process and outcome of the activity. By process, the interactions, developments, discussions and changes to the physical representation is intended. The process is important in the sense that this is where any potential knowledge and insights emerge. The people involved in the activity and their roles and previous knowledge, the material used, the time frame, starting condition and other contextual factors influence the process. Many alternatives and choices were discussed during the walkthrough studied in this paper, most of those were however omitted during the presentations. Some way of continuously capturing knowledge during the process could have improved the technique greatly. For a project on a more general level, the process and the associated knowledge produced during it is perhaps more important than the outcome.

The outcome is partially the consequence of the process, and is constituted by a material and an immaterial aspect. The material representation of the new service is a coagulation of the collectively created elements. By itself, this representation holds very little value since each person who sees it will have a unique understanding of what the building blocks represent. The physical manifestation of the service is just one instance in a continuum of representations, and more importantly – the material instance is not the service. The knowledge and insights distributed among the participants make the representation meaningful, but the participants' individual understanding of the service overlaps only partially, since they will all have their own understanding of the collective activity. In the observed case we saw how the participants helped each other and did their best to coordinate their respective understandings of the service. At some points, the participants did now know enough to make informed choices or decisions. These areas are also important to document so that they can be further examined later on.

The many different perspectives on a service, represented by the different participants, is a strength, and can be important to capture as the result of a desktop walkthrough. Video and/or audio recordings of actual work with desktop walkthroughs are probably not the best way to capture the insights and knowledge since they quickly become long and confusing unless hours are spent studying the recordings. Purposefully created, short and informative videos that summarise e.g. insights (about what the service should and should *not* do), choices, opportunities, behaviours and so on might be a good way to communicate the results. Using a definite form of representation, (such as a blueprint, customer journey map, or storyboard) can turn the result into a persistent point of reference, and thus useful as a boundary object.

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