EXPLICATING STAKEHOLDER CRITERIA: OPENING UP THE POWER FIELD THROUGH DESIGN GAMES

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ABSTRACT

Participatory design games involve both users and, later, stakeholders in the development process. Research has shown that such games have documented benefits, such as mutual learning, shared communication and joint propositions for sets of alternative scenarios and future practices. However, as the complexity of participatory design projects increases (e.g. due to a widening circle of included stakeholders), it becomes harder to keep track of the various stakeholders' diverse criteria. Recent design research has shown that criteria of importance to stakeholders—and, subsequently, their ownership—is a first step towards *infrastructuring* as a key factor in bringing about organizational change. For this reason, we ask: What happens if we open up the 'power field' of stakeholder criteria through design games? In this paper, we investigate how three design games manage to engage a circle of stakeholders in identifying and explicating stakeholder design criteria in order to *prioritize* and *select* ideas, scenarios and concepts.

STAKEHOLDER POWER IN PARTICIPATORY DESIGN

Participatory design started as a counter position to traditional system development processes, in which the 'workers' who use the systems were typically not involved. In a participatory design setting, design games are used as a beneficial medium for bringing about mutual learning, shared communication, explorative scenarios, constant reframing and design moves in collaborative settings. Many participatory design researchers have argued that applied design games seek to 'give users a say' and serve as a 'language game' in design processes; for these reasons, participatory design processes are claimed to be more democratic (Greenbaum & Loi 2012).

In recent years, the definition of the term *user* has expanded to include stakeholders relevant to the project at hand (Buur & Matthews 2008). This field of study has evolved from an initial focus on system development and workers to an innovation agenda that, for instance, collaboratively addresses the design of services, business models and organisational change (Ehn & Sjögren 1991; Roos et al. 2004; Brandt 2006; Buur & Larsen 2010; Gudiksen 2015).

Proponents of this direction have argued that designers need to understand the specific terminologies used in their profession, as well as the mechanisms at work between stakeholders, such as the power relations between employees and management and the positive conflicts that stem from diverse interests (Buur & Larsen 2010). This makes establishing what Müller (2003) calls vital *third space* communication settings more complicated.

What are the common denominators that we can use as starting point for fruitful conversation? How can we find a 'working language'?

Rather than treating stakeholder interests as underlying consequences that exist only beneath the surface, we investigate how to bring them to the forefront of a

project and work actively with the stakeholder *power field*, or the set of diverse interests involved in a project.

This could be considered a controversial move, since it contradicts some earlier research. For instance, Brandt et al. (2008: 63) argue that:

> Design games are not an arena for negotiation and compromise. In the playful dramaturgy of design games politics of negotiation are postponed

However, contemporary design thinking states that design is actually defined by 'compromises' between stakeholders (Buxton 2007). In a recent article, influential design thinkers Tim Brown and Roger Martin express the need to initiate 'iterative interaction with the decision maker', calling such interventions 'more critical to success than the design of the artefacts themselves' (Brown & Martin 2015: 58–61).

In recent participatory design research, Iversen and Dindler (2014:15) note the importance of 'anchoring the initiatives' in participatory design. Likewise, Bødker et al. (2017: 24) argue that the backstage activities that link participatory design events are often neglected and that design activities need to address 'the infrastructures to be' and new 'knotworks'. We consider this focus on stakeholder interest and concerns to be a first step in the move towards, for instance, a co-designerly idea and concept development.

Explicating stakeholder design criteria could also give involved actors the chance to ensure that scenarios are qualified and, to some degree, anchored by evaluating them against stakeholder criteria. This represents a form of controlled convergence (Pugh 1991), which can be defined as the act of prioritizing, selecting and evaluating what are sometimes called 'qualified guesses' (Dorst 2011).

Although we can follow Brandt et al.'s (2008) argument to postpone such elements as negotiation and compromise - or, perhaps more precisely, disassemble them into separate activities—we question why these elements cannot simply be integrated into design game inquiry. Based on our earlier interaction analysis, we could argue that these stakeholder interests come into play regardless of when or whether they are consciously introduced. However, one could also argue that such an approach moves stakeholder project interests into an open dialogue with potentially challenging conflicts that could be difficult to turn into so-called 'positive conflicts' (Buur & Larsen 2010).

Therefore, this paper investigates the following research questions: How can design games be applied with the purpose of identifying stakeholder design criteria and unfolding what we call the stakeholder power field? What types of 'power' discussions may emerge from this application?

We began this paper by arguing for a greater focus on identifying and explicating 'stakeholder design criteria, based on a quick tour of the history of participatory design and contemporary design thinking. We now proceed by explaining our research method and the rationales behind the selected cases. This is followed by case descriptions and an analysis of the research question. At the end of the paper, we discuss the cross-case comparison and ultimately present our initial results.

RESEARCH METHOD

We employed design-based action research, in which the participants experimented with new collaborative methods centred on intervention experiments (Schön 1983, 1987). This approach relates to the concept of research-through-design, in which the knowledge gained lies not only in the resulting designs, but also within the design actions, choices and reflections experienced during the process (Frayling 1993; Zimmerman et al. 2007; Koskinen et al. 2011).

Our empirical analysis was based on video recordings of a workshop, as well as observations, notes and the evaluations conducted at the end of the workshop. The video recordings were transcribed and then analysed using interaction analysis (Jordan & Henderson 1995). Excerpts from the data are used throughout the paper to illustrate and understand the incidents.

The case projects we describe included a series of co-design activities. Each of these case projects has previously been analysed in isolation and with a focus on the complete set of co-design events (Gudiksen 2015; Gudiksen et al. 2017). Therefore, in this paper, we move straight to the design game activities related to the identification of stakeholder criteria.

Connecting the various design project cases and considering them within the same paper allows us to conduct a cross-comparison of the case incidents. Here, rather than generalizing (which is rarely the goal in case studies), we look for differences, similarities and interesting nuances. As Flyvbjerg (2006: 221) argues, the study of human affairs contains only context-dependent knowledge. Concretely, the chosen cases were selected with the intention of developing 'a metaphor or establish a school for the domain that the case concerns' (Flyvbjerg 2006: 230).

CASE ONE: THE STAKEHOLDER GRID GAME

In the first case, design games were used to shed light on the current understanding of the relationships among journalists, media producers, politicians and citizens (or viewers) as part of TV concept development in relation to an upcoming national parliament election. Design games were also used to establish design criteria based on the interests of each stakeholder group. After these design games, the project moved to the generation of ideas about possible programme themes and angles. The participants were divided into two groups. One group focused on the media content of a channel that delivers programmes for people between 15 and 35 years old

(typically programmes with concrete actions). The other group focused on the debate-related media content of a channel that delivers good debates.

The Stakeholder Grid Game

We called the activity *The Stakeholder Grid Game*. The purpose was to explore, establish and prioritise design criteria, as well as to discuss the relationships among these criteria from the perspectives of the various stakeholders.

The game used a simple game board with squares, each of which represented a design criterion (fig. 1). By design criteria, we mean the perspectives of each stakeholder group that could lead to their participation in, contribution to and concepts of ideas that we could judge and evaluate. Writeable, transparent bricks were used so that the criteria could be easily moved around. The procedure was as follows: First, the groups were told to think only about criteria related to each of the four stakeholder categories: citizen (blue), producer (yellow), politician (red) and journalist (green). Second, the groups discussed the criteria and positioned them according to their relative levels of importance. Hence, the game was also a prioritising activity. The inner square illustrated the most important criterion for each stakeholder to participate in a positive manner.

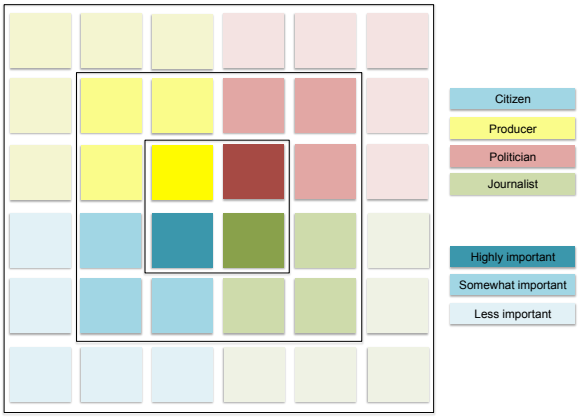

Fig. 1 The Stakeholder Grid Game. Each colour represents a stakeholder group. The criteria closer to the middle are considered more important.

Dialogue examples and activity progress

The participants began by suggesting various criteria. Some wrote these on the bricks and placed the bricks on the board. Others suggested criteria before they placed them. In many incidents, the stakeholders challenged one another's viewpoints:

Media student A: 'Now, we come with the focus on interactive digital media, and we would like to have viewer participation, so that you don't sit back passively as a viewer…'

Media student B: 'It's maybe part of this one (points at the criterion 'relevance'; see fig. 2 blue corner)—presence and engagement'

Producer: 'But that's something you suppose...but yes.'

Media student A: 'Yes, but instead of a panel discussion being steered by the journalist, it could be viewers or spectators that, if not steered, then influenced the programme.'

In this case, there was disagreement about what the viewers or citizens actually wanted: that is, how and how much they wanted to engage in the debate.

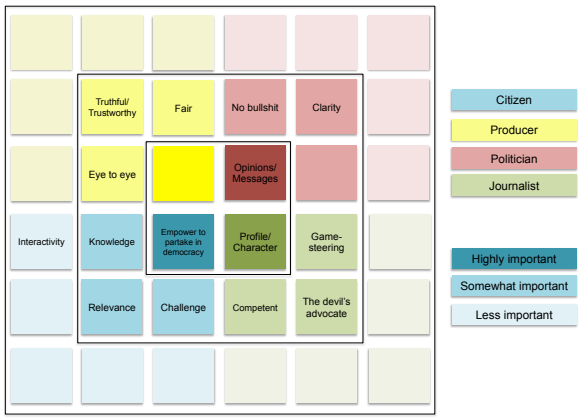

Fig. 2 The Stakeholder Grid Game. The edition made by the group, with a focus on debate-related programmes.

It is such positive conflicts (Buur & Larsen 2010) that increase stakeholders' awareness of different viewpoints and possibilities. After the groups had each completed an edition of the grid game, they compared them and eventually created a shared edition (see fig. 4). However, they failed to reach a full consenses. They also discussed the 'match' among the four inner criteria: something at stake (producer), challenge (politicians), what's in it for me (citizen) and 'turned off camera' (journalist). The journalist criterion was particularly intensely discussed, and at one point, both in the shared group talk and before that, the participants tended to agree on the 'character' journalist criterion instead (see fig. 3).

Fig. 3 The Stakeholder Grid Game. The groups made the shared edition during the discussion.

The two groups' chosen criteria differed in many ways. For example, for the group that focused on viewers and was interested in good discussions, the most important criterion for the citizen was 'empower to partake in democracy' (see fig. 2 blue corner); however, this

criterion was seriously challenged by the other group, which saw 'what's in it for me' as the most important criterion for the citizen. Both groups began to question their own criteria. Ultimately, though the shared edition (fig. 4) was the agreed-upon final model, both groups argued that the criteria should vary because of the differences in the target groups.

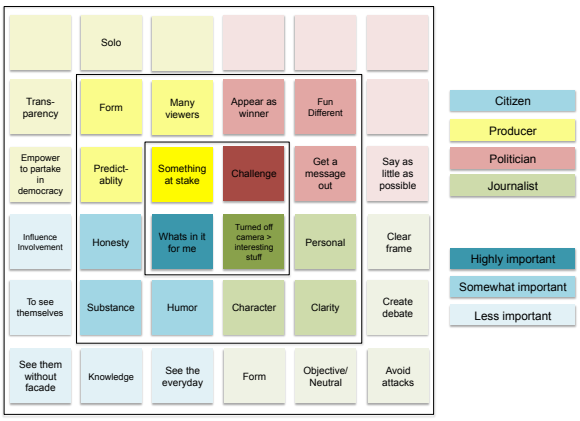

Fig. 4 The Stakeholder Grid Game. The groups made the shared edition during the discussion.

Because of the less visible perspective of the politician's viewpoint—and, to some extent, the citizen's viewpoint—the journalist's viewpoint might have dominated the suggested criteria and the selection of criteria that were considered the most important.

CASE TWO: BREAK THE BARRIERS

The agenda for this day was to establish stakeholder design criteria, to help establish a shared understanding of the different stakeholders' roles and competencies in the Smart City project and to find solutions to the major challenges in the process. The six stakeholders had different backgrounds, and each represented one of the four parties in the *Quadruple Helix Model* derived from Carayannis and Campbell (2009, see fig. 5).

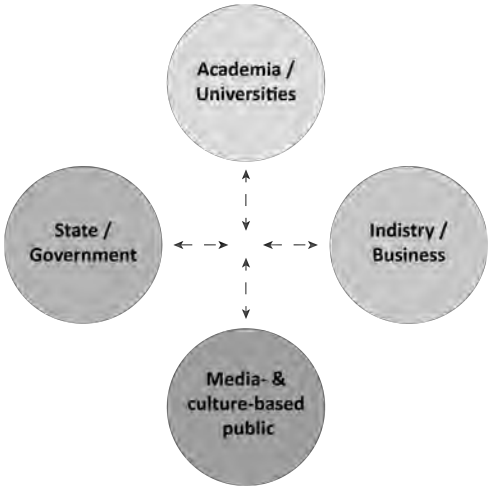

Fig. 5 Own model of the Quadruple Helix by Carayannis and Campbell (2009)

The stakeholders had different backgrounds and competencies, though they included a few more municipality representatives. Still, they could be segmented into a common group of experts with knowledge of Smart City projects. To encourage this group of experts to use a specific thinking flow that could help build parallel thinking to generate, evaluate and critique ideas and solve problems, we were inspired by Disney's Creative Strategy (Dilts 1994). In this particular part of the research phase, we wanted the participants to perceive the project through a realistic point of view. Therefore, they were encouraged to think in a logical way that helped them solve the problems they generated knowledge of through the various interventions. The main goal of this phase was for the participants to organize the project and turn the generated knowledge and ideas into a manageable action scenario.

Fig. 6 The Walt Disney Creative Strategy Model by Dilts (1994)

Opening up ideas & Break the barrier Game

The workshop was planned with inspiration from the *Future workshop* (Kensing & Madsen 1992). Therefore, it was divided into three interventions with different consecutive activities, representing the critique, fantasy and implementation phase (Kensing & Halskov 1991). The specific elements within these activities were expected to motivate creativity and open a dialogue among the stakeholders to generate mutual learning (Vaajakallio & Mattelmäki 2014). Furthermore, the interaction was meant to encourage the stakeholders to adapt the present, the near future and the speculative future (Sanders & Stappers 2014). To broaden the stakeholders' perspectives, we decided to introduce metaphors (Kensing & Halskov 1991; Casakin 2007). Therefore, the main topic of the game (and, eventually, its name) was breaking barriers.

The first part of the workshop was a simple brainstorming intervention. The purpose of this opening phase was to allocate the different challenges (or barriers) facing the Smart City project. First, the stakeholders were asked to individually write down as many possible challenges as they could based on their professional expertise. On the table in front of them, the stakeholders could find inspiration in different artefacts, pictures and printed words. These objects, inspired by the *Index Cards* and *sources of inspiration* suggested by Halskov and Dalsgård (2006), were designed stimulate

the stakeholders' thoughts. Next, the stakeholders were asked to present their own challenges to the others, placing similar ideas on top of one another. To converge the many challenges, the stakeholders were asked to cluster the challenges and consider their relative importance and interrconnectedness.

Fig. 7 Clustering the challenges and considering their interconnectedness

The next step, the fantasy phase, was the main activity of the design game. During this phase, the stakeholders discussed solutions to the eight challenges that were brainstormed and grouped in the first part. The game *Break the Barriers* consisted of a game board, a ball, barriers and a scoreboard with a wheel to structure turn-taking. This is where the metaphors really came into play. The game board formed a small hill, illustrating the process, the ball illustrated the project and the barriers illustrated the challenges that the project would face during the process.

First, the stakeholders placed all of the barriers on the game board. The ball was placed at the start of the hill and hit a barrier. The wheel was turned to decide which stakeholder should begin trying to break the barriers using their competencies. After the first stakeholder, the others followed. When each barrier was broken, it was placed on the scoreboard.

Fig. 8 The hill and the challenges.

Dialogue examples and activity progress

In many incidents, the stakeholders incorporated their professional backgrounds and individual competencies. They argued with respect and built upon each other's ideas.

User experience designer: 'Do you know that game in the cinema, where it pop up on the screen?'

Municipality Smart City manager: 'Ooh, yes, where you can play with your phone?'

User experience designer: 'I think that this could be a great feature for something like this…'

Municipality Smart City manager: 'Yes, yes, sounds interesting.'

IT developer: 'That was exactly what I meant with an app, where it pop up like this: Biiing.'

In this case, the user experience designer and the IT developer used their backgrounds as developers to inspire each other and inform the others, who accepted the ideas that they brought to the table. The stakeholders also showed a thorough interest in participating in the discussions and taking responsibility.

Facilitator: 'Do you think that this is enough solutions to break the barrier and place it over here on the 'broken' part?'

IT developer: 'Yes, that should be fine.'

User experience designer: 'Yes.'

Student municipality intern: 'I think that something is missing. Maybe some of what Lene and Heidi could bring. What is the value seen from the municipal point of view?'

Or, in this case:

Head of development municipality: 'It depends what is most important to manage first. Is it about economy, or is it ownership?'

Network manager: 'I think that they are kind of equal?'

Head of development municipality: 'Yes, yes.'

Communication manager: 'That part about the users, won't be possible before the other things is a reality?'

IT developer: 'I think that because we are working with a political organisation, it is economy and the value part that is important. If we can't argue for these two, there will not be a project.'

In the third part, the stakeholders were asked to schedule the coming process by placing the broken barriers on a game board illustrating a timeline of the present, the near future and the distant future. In this activity, the stakeholders yet again used their professional experiences to complete the task and create new discussions about the order of the barriers. At the same time, the game board seemed to help the stakeholders and did limit their solutions. For instance,

they decided to draw arrows illustrating that the barriers were connected.

Networking manager: 'There is some kind of connection between many of them.'

Communication manager: 'Maybe we can draw it.'

Fig. 9 The final intervention with the challenges and relations

Throughout the workshop, we observed that the stakeholders found their roles from the beginning and contributed their own thoughts about the project, which were already defined beforehand. However, it also seemed that the stakeholders had a mutual understanding of the project and a clear definition of the main topic. They showed commitment to finding solutions and challenged the other participants' opinions in a respectful manner, listening to one another's ideas.

In co-design, the entire team must show creative initiative. However, an individual's ability to become a designer depends on his or her level of creativity (Sanders & Stappers, 2008) and ability to form new ideas (Gudiksen 2015). In this workshop, we explored how a circle of stakeholders with different experiences facilitated a 'third space', where they managed to combine diverse knowledge into new insights and plans for action (Müller et al. 2003). Though the stakeholders certainly had different interests, they possessed a mutual understanding and communicated on an equal level. Their expertise and their goals for participating might have been diverse, but they all had the same interest in developing and completing the project. Therefore, though their expertise in, for instance, technology might have varied, they were able to use their passions for or knowledge of other fields to inform one another and build new knowledge around the issue at hand.

Furthermore the design game and the ludic dimension facilitated a commitment and ignored the potential for power relations. The circle of stakeholders had different opinions regarding the prioritizing of the barriers, and by the end, the group had collaboratively identified process challenges, clarified a mutual understanding of their own and each other's competencies and mapped the project process.

The stakeholders' efforts to define and develop the game content created to create a stronger commitment. Throughout the game, the earlier sticky notes were always visible to the stakeholders and gave them the opportunity to find primary ideas from which to argue. This secured a procedural flow and ensured that no knowledge or findings were forgotten.

CASE THREE: THE PRIORITISING GAME

The purposes of this participatory design game were to present six concepts to two stakeholders and motivate them to qualify the concepts through discussion and prioritising. By comparison to the first two cases, this design game were implemented late in the design process. It was a part of a co-design process between a group of students and Aalborg's children's library. During the co-design process we had worked with two stakeholders from the library and preformed two workshops with children aged 5-7 years. The design game presented six concepts for the stakeholders to discuss, compare and ideate. Our goal was to narrow down the scope of possibilities when working with digital design concepts in a public space. The six concepts were developed through co-design activities like the two workshops with the children.

The prioritising game

The prioritising game was part of a concept development phase for the Aalborg Children's Library, and the design game was used to inform and challenge the stakeholders' views concerning the users' values and needs. It was also used to gain insights into which kinds of concepts would be realistic in a library, considering the rules and strings attached to a public place. Buxton (2007) argues the importance of context to which you design, this was one of the reasons we needed the stakeholders knowledge about the possibilities in the library and their users. Lastly, the game was used to ideate the presented concepts to ensure ownership from the library (Brandt et. al, 2008). We designed the design game for the two stakeholders from the children's library: one from the administration department and one who worked with the library's users.

The design game was a low fidelity design and consisted of the following elements: A board that was divided in six levels (one level per concept) and 10 game pieces. Five of the game pieces represented the library's values, and the other five represented the values of the users (children five to seven years old).

Each board level was divided into two sides: one for the users' game pieces and the other for the library's game pieces.

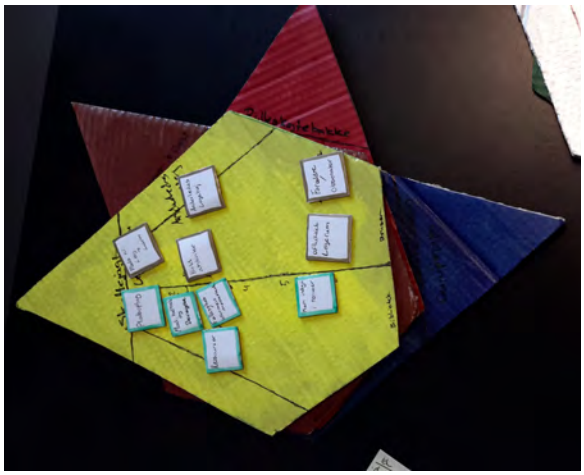

Fig. 10 The prioritizing game after the third level was played out and the stakeholders placed their game pieces on the board.

There was a line in the middle divided the two sides on each side. On the line, the numbers one through five were written. These numbers were intended to help the stakeholders prioritize the values of different concepts. Five was a low priority and one was a high priority.

The purpose of the game was to get the two stakeholders to discuss the concepts through the eyes of the users (stakeholder group 1) and the organization (stakeholder group 2). The objective was to identify and ideate on one or more concepts that could unite the two stakeholder positions.

The game pieces were based on a previous workshop with the library stakeholders and an ideation workshop with eight children.

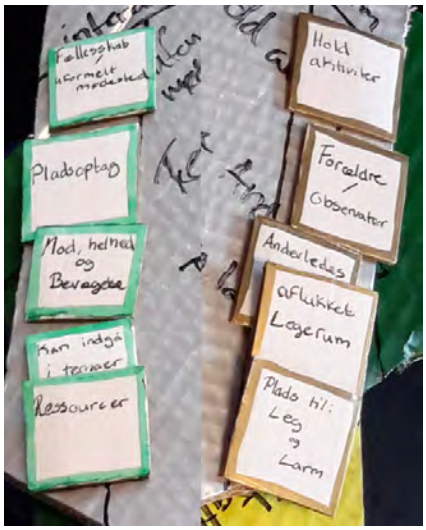

Fig. 11 The game pieces for the prioritizing game.

The values extracted from the workshops served as design criteria during the design process. The purpose of the design criteria was to create a tool to evaluate and measure the success of the concept.

Dialogue examples & activity progress

The game started with a presentation of the first concept (the first layer of the game). This presentation was done by one of the researchers. We had sketched low fidelity mock-ups to visualise the concepts . A mock-up can be used as tangible starting point for a discussion (Ehn & Kyng, 1991, p. 172-173) which was the point in the workshop. After the presentation, the two stakeholders discussed the pros and cons of the concepts. Afterward, they evaluated the concept from the perspectives of the user and the library by placing and positioning the game pieces according to the concepts' values.

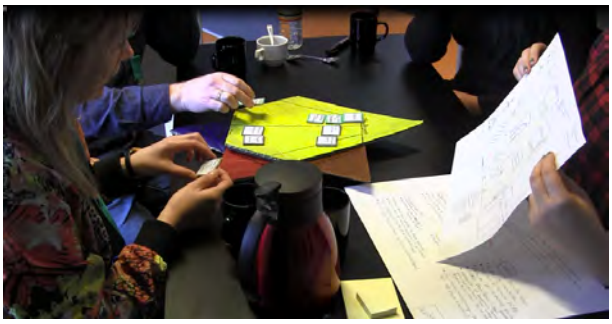

Fig. 12 The stakeholders placing their game pieces on the board while discussing the concept.

This process was repeated for all six concepts. After the discussion, the stakeholders were asked to compare and assess the values of the concepts, as well as ideate on and develop the presented ideas. During this discussion, the stakeholder argued the relevance of the concepts:

Administrative manager: 'From a professional view, I think those concepts have the biggest potential.'

Librarian: 'The one with [..] the worlds. In that one, we could enter almost any kind of content we'd like.'

Administrative manager: 'From a play perspective, these are interesting, but I don't know how it would work as a learning tool […] which can be fine as well, depending on what we want'

In this example, one stakeholder questioned the purposes of the different concepts. Should the children just play, or should they learn through playing? This was a discussion we had many times over the course of the project. In the end, the stakeholders decided that they wanted the children to undergo a concept-based learning process, and this decision affected the rest of the discussion. This decision was also helpful at the time, since it give us a perspective from which to work in the following stages of concept development and prototyping.

During the design game we observed, the stakeholders changing their minds about the placements of various game pieces. In one case, the administration stakeholder moved the game piece '*courage and movement*' from a low value (5) to a higher value (4).

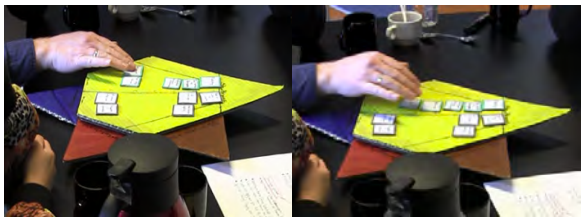

Fig. 13 The stakeholder changes his mind during a discussion and moves a game piece to change the value of a concept.

During the game, the values of the library collided with the needs and wishes of the users. When this happend, the stakeholders aligned around the library's values, since these were the values to which they were committed. If the game had been played by two library stakeholders and two users, the dialogue might have gone differently.

After the six levels and concepts had been discussed, the levels were folded out on the table, and the stakeholders were asked to discuss and compare the concepts.

Fig. 14 The concepts in the prioritizing game and the comparison

During the design game, the stakeholders discussed the different concepts' values and how they could contribute to the library. During the prioritising session, they choose to proceed with three concepts, but made it clear that they preferred one of them.

Administrative manager: 'I like this one a lot. The other two concepts are great, but I think this one is the most innovative, and I think it could give us something new to draw people in.'

Librarian: 'Yes, I agree. This is the best one.'

The prioritising game worked as a tool for framing and qualifying six concepts. We used design game to frame the workshop to ensure ensured the stakeholders' participation (Brandt 2006) and framed their feedback into a structured and controlled convergence activity (Buxton 2007). We had previously been explorative in the concept development, but because of a deadline, we had to be more convergent and concrete. The prioritising helped us with this.

CRICITAL CROSS-COMPARISON AND INITIAL FINDINGS

In this comparison, we discuss some of the themes that emerged from our work with the cases.

Keeping track of stakeholder criteria

In all three games, the major successes were found in the 'tangibility' of the stakeholder criteria. Through the visual elements and moveable objects, the power fields became clearly visible. In case one, the two groups were pushed to conduct a comparison, and this encouraged the journalists to challenge one another's viewpoints. This situation illustrates that it sometimes makes sense to split people up into more groups. Furthermore, in the *Break the Barrier* game (case two), it was interesting to see how the group chose to position the challenges and discuss which kinds of challenges needed to be considered first.

Presence of all stakeholder groups – a question of representativity

The Stakeholder Grid Game (case one) lacked politicians: a stakeholder group important to concept development. Furthermore, the journalist viewpoints on the subject matter dominated the criteria for this case. Therefore, it is interesting to consider what can be done if a stakeholder group cannot join a design event. It would have been possible to follow up on this topic in a second activity; however, had we done so, we might not have been able to identify the important 'positive conflicts' through which the participants' challenged one another's viewpoints. Similarly, in case two, with the *Break the Barrier* game, there were more municipality representatives present than any other kinds of representatives. However, the conversations suggested that the user experience developer and the IT developer formed a kind of alliance to convince the others of the potential of various ideas. Finally, in the last case, the library representatives seemed to lean towards somewhat fixed perspectives rather than a balanced focus. Even when concepts were based on user data, these data were insufficient. This raises the question of what can be done if a vital stakeholder is not present. In such cases, though the facilitator might not be equipped to role-play the missing stakeholder, this might be the best and only option.

Games as a working language

In comparison with other tools and techniques design games is especially good at establishing a working language. Why? Based on these findings the familiar resemblance that can be found in bricks, boards etc. enables a quick shared frame for participants, and the few game rules and procedures supporting the activity results in a structured dialogue (Gudiksen 2015). However in the cases it was also found that sometimes the term 'game' instantly creates an understanding in participants that the activity incorporates some kind of scoring mechanism and winning condition, which is rarely the case in design game activities (also noted by Brandt 2006).

We consider these findings to be preliminary and suggest two future research themes:

(1) Bringing stakeholder criteria into the open is a good first step; however, our experience shows that new criteria can enter along the way and/or lie beneath the surface, emerging at different steps. Therefore, we could suggest that upcoming projects experiment with design games that are dynamic over time, perhaps discussing either before or after each session whether changes should be made based on recent activities and experiences. Furthermore, in terms of game design, one might consider a couple of perspective change game techniques to secure replayability and a consistent challenge of assumptions.

(2) A key area of future research on participatory design games concerns how to incorporate into design games the ability to make 'shared qualitative judgments', which Nelson and Stolterman (2003) argue is a daily challenge for design teams. The design criteria identified through collaborations among stakeholders might lead the way forward through the end of design sessions when it comes to selecting the best paths to follow according to the involved circle of stakeholders.

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