SUSTAINABLE INFRASTRUCTURE FOR AD HOC SOCIAL INTERACTION

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ABSTRACT

We explore how to design sustainable infrastructure for ad hoc social interaction based on the conception of infrastructuring, meta-design and Living Labs. The exploration is based on a design experiment of establishing a Network Zone (a Living Lab setup) with support of a smart phone app. The objectives of our design program were to create connections and design possibilities for letting social interaction emerge through use that could continue beyond the project period. The experiment was part of a project in collaboration with a larger urban municipality (Copenhagen) to rethink the way we can offer services to senior citizens in order to strengthen social interaction among them. It was done in an urban outdoor environment. We add to the discourse that positions design as something that, rather than taking place before use, should happen in use – here by creating objects that are open for reconfiguration through use.

INTRODUCTION

In this paper, we want to demonstrate how we methodically can create sustainable infrastructures for social interaction. We explore this with an approach to the design process of meta-design (design after design) and infrastructuring (Björgvinsson et al. 2010 and Telier 2011) as well as the concept of Living Labs (Binder et el. 2011, Binder 2012). Social interaction is dynamic and cannot be designed, but only designed for. Through an approach of design after design we want to design possibilities or potential things from where social interaction can emerge through use. The case we work with is from a project with the focus of designing for social interaction among senior citizens. In this co-design project we are collaborating with the municipality of Copenhagen, senior citizens and other partners on rethinking and envisioning possibilities for the delivery of services to the elderly in Copenhagen.

As populations age e.g. in Europe and especially in Scandinavia (European Commission 2009) there has been an increased attention turned to ways of maintaining quality of a good life for those categorized as elderly. Much attention has been on assisted living (AAL 2013) and on 'aging in place' through different technologies as a consequence of a lack of 'warm hands' in the care sector. Such agendas implicitly inscribe aging as a process of physiological decline (Ertner and Malmborg 2012). Less attention has been on the importance of maintaining social interactions as an important aspect of a good life as senior, and today we witness major public efforts to address the increasing loneliness among elderly citizens (Lindley et al. 2008) What if discussions in society about welfare technology focused on social aspects of life – on how to be involved with other people – in addition to how to cope with necessities like cleaning, personal hygiene and health issues? Being involved with other people and having a sense of belonging is an important part of human lives. The question is how we handle this (for some people essential) need when we for different reasons no longer are part of the community. A community that naturally exists when we e.g. are part of the labor market or have children living at home. During the initial fieldwork and dialogues with senior citizens and people from the municipality in the project (spring 2010) we on the one hand experienced some elderly who structured their everyday lives and social gatherings around the different activities in their local activity center (conversations with Ketty, Amy and Lily, VOC) and it worked very well for them to have something to attend almost every day during the week. On the other hand, we also met senior citizens who were not attracted to these places, because they could not identify themselves with the place or they found the

activities at these places too rigid or conventional (Robert, Anni, Muhammed and Jytte, conversations in workshop 1). The group of citizens who expressed the latter viewpoint was often somewhat younger – 55 to 75 years – and can maybe be characterized as the new generation of elderly. In our collaboration with the municipality we addressed this group of seniors with our design experiment. At the same time, we often met a wish to structure everyday life with the option of adjusting from day to day because a lot of the seniors were uncertain about their condition (physically, but maybe also mentally) on the particular day. We conceptualized this as ad hoc social interaction.

INFRASTRUCTURING AND META-DESIGN

We work in the field of participatory design and co-design, but also face the challenges of the move from the traditional workplace projects to projects in the public space addressed by Bjorgsvinsson et al. (2010). Dealing with projects in the public space means that the people you are designing for are not necessarily known and the focus in on open up spaces of possibilities. To meet these challenges, Bjorgvinsson et al. suggest to position design as something that, rather than taking place before use, should happen in use, by creating objects that are open for reconfiguration and modifications. At MEDEA in Malmö, the researchers (e.g. Björgvinsson et al. 2010) are working with the notion of social innovations and are exploring how to create infrastructures for these innovations in the Malmö Living Labs with a focus on meta-design. Meta-design is also referred to as Design after Design. It is an aspect of design research that recently has increased in focus as a way to address the new challenge of participatory design of not designing for a specific purpose or target group. In our project, it means that we are not designing social interaction but designing by opening up possibilities for social interaction to emerge. In this perspective, the design researcher is provided with a new challenge to create an open design solution, which enables configurations and modifications in use situations. Inspired by Björgvinsson et al. (2010) we conceive infrastructures as the aim of a design process, which means that the end result of the process is not a concrete artifact. Instead, what is being designed are infrastructures for social interaction, which can continue after the project has come to an end. It combines the design situation with the use situation. We work with this in a setup we perceive as a Living Lab (Binder et al. 2011, Binder 2012). Our understanding of a Living Lab is that it is not a specific place but rather a network of people and resources that both have committed themselves to an agenda of change. Often this agenda is not new but already shaped by what the participants bring with them. The involvement of citizens is not as representatives, but as engaged individuals with their own priorities and experiences. The laboratory is the setting for a meeting of everybody in the network that is in motion. The municipal employees, representatives from the private service sector etc. are important

participants because they are also the ones who need to explore and practice the new relationships, as a co-production of services requires. The meeting in the laboratory is not a debate from fixed positions, but rather an open exploration of options. It can be difficult to determine exactly when the co-production is leaving the laboratory and becomes a natural part of everyday life. A new everyday practice establishes itself in the laboratory, and the relationships that for a long time were on trial becomes incorporated and anchored in time and space. A Living lab is more than a trial connection for new initiatives. It is a scene and a training ground for new relationships and networks (Binder 2012).

A LIVING LAB IN AN URBAN PARK

In this paper, we explore and discuss the design of a sustainable infrastructure for ad hoc social interaction among senior citizens through a design experiment called the Network Zone. It was part of a larger research project with the Copenhagen municipality focusing on social interaction among senior citizens. Together with project partners and senior citizens the project group established a Living Lab (the Network Zone) that took place in Valbyparken (an urban park in the area of Copenhagen). We wanted to explore if and how we could establish a foundation or an infrastructure to support the emergence of social interaction by extending our meetings in time and place. At the same time, the process of infrastructuring aimed at establishing connections with the possibility for continuation of the community beyond the research project. To sum up, the idea was to establish an infrastructure that could secure the seniors of an ongoing community of outdoor activities. The infrastructure, from where social interaction could emerge, had a potential of being accessible beyond the project, as a service to participants. In this paper, we especially focus on one of the elements in the process of infrastructuring, which was a smart phone app named after the overall Living Lab: Network Zone.

Through our design experiment and the three perspectives of design after design, co-design and infrastructuring we want to explore how we can design sustainable infrastructure for ad hoc social interaction?

In the first part, we present the background for this paper to give an idea of the project the experiment was part of as well as the Living Lab approach and methodological challenges related to this approach and to working with elderly. Our design program is presented in the next part, and forms the background and drive the specific design of the Network Zone that is presented in the following section called Design Experiment: A sustainable infrastructure. The subsequent discussion addresses the identified issues related to the question of how to design a sustainable infrastructure for ad hoc social interaction, on which we conclude.

BACKGROUND: PROJECT AND METHOD

The larger research project we have been part of is called SeniorInteraction (Brandt et al. 2012, www.seniorinteraktion.dk). We (the design researchers from the IT-University of Copenhagen and the School of Design) were invited to take part in the efforts of a bigger urban municipality (Copenhagen) to rethink the way they offer services to senior citizens. The project initially targeted a city district with more than 10.000 citizens potentially affected by these services. The municipality invited us because they believe that we could help them promote co-design and co-creation of services with the active involvement of senior citizens.

In the project, we based our research on a co-design approach. The focus was on creating dialogues and envisioning future possibilities for social interaction together with the senior citizens, but also the project partners and people working with senior citizens. In order to create a common platform or language, we staged the stories of the senior citizens' everyday lives. This took place in field visits at activity centers and private homes where we met the seniors with a workbook as a frame for the dialogue. The workbook was created among the researchers as an elaborated design program and made into a dialogue material similarly to a probing kit. We carried it along as we commenced a process of recruitment, and used it in the dialogue with the senior citizens. This took place in the project's initial phase (winter and spring of 2010). It was followed by a series of workshops where we all collaborated around collages, technology props and dolls in the process of envisioning possibilities by transcending the stories of everyday life into future scenarios.

Here, a design challenge was how we moved from the dialogues about possibilities to actually envision the future possibilities in the natural environment of the ideas. We established a space for change that took form as Living Labs. The Livings Labs were established in the next phase of the project (spring to fall of 2011) to explore how new communities and new forms of co-production could grow within the actual space for discussion (Binder 2012). We report from one of the Living Labs where a network of seniors together with municipal employees, researchers and private partners established a Network Zone of outdoor play and exercises in an urban park. The aim was to make the park our space for change in which we could envision new possibilities for social interaction among the senior citizens. It was done by rehearsing the ideas and scenarios from the workshops in practice. In our Living Lab participants jointly and independently engaged with the possibilities within reach of their everyday life and their everyday environment – the urban park.

REPRESENTATION AND PARTICIPATION: SITUATED ELDERLINESS

Part of our methodological challenge was the question of representation and participation. Few of us see ourselves as representatives of a group and even less so if the group we need to be part of is characterized by physical and mental decline, which is often the case when seniors become clients of the public senior service system. Conversely, the municipality has neither at official level nor among politicians a tradition for engaging with the individual. The answer to these challenges is to let the snowball roll (Latour 2005) by meeting people in places where they are - in our case in activity centers, clubs, etc., and encourage them that their everyday life stories are important to others than themselves. When we later invited the seniors to workshops they participated as Ove, Robert, Amy, Lilly, etc. and the stories they chose to share were about the communities that they were already part of, as well as networks they could imagine being part of in the future.

These questions of representation and participation lead us to more general methodological considerations and discussions when working with elderly using the concept of 'communities of practice' to approach this discussion (Brandt et al. 2010). Instead of focusing on recruiting individuals, an alternative approach might be to use everyday practices as a frame and starting point. The concept of communities of practice was originally developed to capture the skills and competencies enacted by people engaged in a professional practice. When expanding this concept to include everyday practices outside work life we could talk about communities of everyday practice where elderly are skillfully enacting everyday practices as seniors. Gradually as we get older, we enact what we would call situated elderliness. With situated elderliness we refer to practices that include activities that for some reason or another has become more challenging or perhaps even impossible to carry out by the person himself or herself. Things that we earlier in our life performed easily gradually or suddenly become difficult. Examples of specific situations where we experience the situated elderliness can relate to physical aspects of life, e.g. not being able to change a light bulb because using a ladder is difficult when we have balance problems or not being able to perform required banking or taxpaying tasks because you are not familiar with the digital tools required to perform these tasks. In these situations in a contextual sense we practice situated elderliness, but simultaneously we do not in general consider ourselves old, as we might be able to handle all other situations in our everyday life (Brandt et al. 2010).

It might be especially in these situations, we need to belong to a community - both for social interaction, but also to receive help with the little things in our everyday life we find difficult to handle; a community of situated elderliness where you can both help and receive help from others. It is this approach that we build upon when we work together with the Municipality of Copenhagen to rethink the way the public sector delivers services to the senior citizens. We explore the possibilities of

providing services that are no longer based on individuals but are targeted at communities instead.

Figure 1: Engagement in the game

DESIGN PROGRAM

The aim of our process is to design sustainable infrastructure for ad hoc social interaction based on the conception of infrastructuring and meta-design (Bjorgvinsson 2010 and Telier 2011) and the concept of Living Labs (Binder 2012). With a co-design approach to the design process we emphasize the collaborative work both together with the private partners, the municipality's employees and the senior citizens. The objective is to establish a Living Lab as a space for change, where it is possible to rehearse new practices in the process of rethinking and designing new services. The close relation to the everyday lives of the seniors has the purpose of making it possible to rehearse and enact new practices that can continue after the closure of the project.

The process of infrastructuring is never only a (technical) platform, but according to Susan Leigh Star and Geoffrey Bowker (2002) it is a sociomaterial thing. It means that the process of infrastructuring involves the situation the infrastructures is going to be 'sunk into' and includes the human and non-human actors of the assembly. Infrastructuring is about creating connections between the different actors. Telier (2011) continues about infrastructure referring to Leigh Star: "An infrastructure, like railroad tracks or the Internet is not reinvented every time, but is 'sunk into' other socio-material structures and only accessible by membership in a specific community-of-practice. Infrastructure or rather infrastructuring is a socio-material public thing, it is relational and becomes infrastructure in relation to design-games at project time and (multiple potentially conflictious) design-games in use" (Telier 2011, p. 277).

In the Living Lab Valbyparken, we tried to design infrastructure like spinning a web under the ad hoc community of outdoor activities. We wanted to explore if and how we could establish a foundation or an infrastructure that could extend our meetings in time and place, and establish a possibility for continuation of the ad hoc community of the seniors after the project

group (researchers and other partners) had left the Living Lab and the project had come to an end.

This design program on infrastructuring established the ground for our design experiment.

DESIGN EXPERIMENT: A SUSTAINABLE INFRASTRUCTURE

With the understanding of infrastructuring being a process of connecting humans and non-human actors we experimented with how to establish an infrastructure to support this continuation of the community. One of these actors was a smart phone app named the Network Zone. It played a role in trying to provide space for dialogue, planning and negotiation between the meetings in the park. This was a way of supporting social interaction in a community of outdoor experiences. In the design of the app, the central point was about being connected and trying to enhance or 'stretch', not replace, the face-to-face meetings. In the Living Lab period (summer of 2011- fall of 2012), the project group, including partners, met every second Friday at 10 am with 2-15 seniors showing up.

FROM FOAM DOTS TO SMART PHONE APP

The idea of the outdoor community in an urban park came from the initial phase of the project. During one of the workshops we played with foam dots and carbon props representing different forms of technology – a concept we coined the Super Dots (Foverskov and Yndigegn, 2011). The idea was to give the senior participants a sense of how you can be connected and how you can get in contact and see each other before, during and after an activity. One of the groups in the workshop that consisted of the three seniors Amy, Jytte and Robert, two industry partners (sports instructor and interaction designer), Bo and Marcus, and two researchers from the project group, Signe and Pernille, enacted the concept of the Super Dots when creating a doll scenario of a trip to Valbyparken. "The weather is nice and we're going to Valbyparken, but how can we find each other?" Jytte starts and continues: "I arrive with bus no. 3. Can't I get some clothes on, I do not like to be naked in the bus?" Jytte refers to the doll she plays with. Jytte's doll is getting dressed. "How can we find each other?" Signe asks the rest of the group. There is some discussion on what kind of technology props we need, and we decide on the one called the 'seeker'. "But we all need to have it turned on, otherwise we cannot find each other" Amy says.

Figure 2: The group creating the scenario using the concept of the Super Dots and the props.

With the help of foam dots, carbon props and our co-constructed scenario it became a story about how they could be connected during a trip to Valbyparken. Along the way, the group had different reflections on what kind of technologies they could use and how, for example to find each other in the park when they wanted to meet. But also on who should be able to find them, and whether they were interested in meeting with other people when they were on this tour together. There was some discussion on whether or not they wanted to meet with people they did not know beforehand. After the trip, being connected through screens in their homes, they shared the photos that Robert had taken during the trip. The scenario about the use of technology to be connected and support a common experience in the park was maintained from the initial workshops. To explore how this could work in the context of the seniors' everyday lives we moved the story from the scene of the doll scenario to the Living Lab in Valbyparken. It became a Living Lab centered around exercise and outdoor experiences, and of trying out new technology. We went from conversations about envisioning future possibilities of new services to the rehearsing of new practices.

FROM IMAGINATION TO REHEARSING OF NEW PRACTICES

In Valbyparken, the foam dots and carbon props were replaced with Android smart phones. The choice was to some extent a question of availability, but at the same time they could accommodate a lot of the functions from the concept of the Super Dots. Our senior participants' journey with smart phones began with some existing applications. We started our explorations with the location-based application Google Latitude and later Foursquare to explore the idea of being connected and visible to each other in the park. But the focus was not entirely on the application to start with: "what if we're only used to a phone with push buttons?" It comes from Anni, who seems a little nervous about the situation. "It's exciting, where we're gonna end up," one of the others in the group responds. We were met with this anxiousness the first times we introduced the smart phones as part of our meetings in Valbyparken. We were going on a treasure hunt and the stations had been put into Google Latitude, and the seniors, with a little help from the project team, had to identify the different stations and tasks. The experience was about how it was to find their way around the park via the application on the phone as a way of supporting and extending the game by the technology. The experience also came to be about how to use a mobile phone with a touch screen and to find the different features as the next snapshot shows: "Try to click and see what it says at the station," Signe from the project group suggested to Birgit, who held the phone. "I can't see anything, now there are different screens." After a short break Birgit continued to look and touch the screen. "Oh, now I have to wipe the screen, it's a little greasy." Øyvind came along, and they continued to look for the camera, because the task

said to 'take a picture'. Finally, the camera function was found, and Birgit exclaimed enthusiastically to the rest of the group. "Come all my friends, and I'll take a picture of you."

During the first meetings with the smart phones in the park, the focus was often on whether you could read on the screen, if you could take a picture and - now the map disappeared, how do I find it again? All the small trials you often go through when you get unfamiliar technology in your hands. This was a challenge and hurdle for everyone and became a determining part of the actual rehearsing of new practices of social interaction. The smart phones were part of the activities, and the senior participants in the Living Lab learned how to handle them, but initially there was a tendency of the smart phones taking away the focus of the social gathering. But the seniors' comments along the way showed us that it made them aware of what they wanted to do with smart phones and what they wanted to use.

In the experiment, our exploration was through Google Latitude and Foursquare, which gave us some indication of what we could do with the smart phones when we were in the park. But it was not our own applications - we shared them with a lot of other people, and there were many unnecessary features in the apps, which often caused confusion among the senior participants. We realized that in the process of rehearsing new practices we needed something local and adapted to our network. It made us realize that we needed to get our own application as soon as possible, but it also gave us an understanding of what we should include in the design of the application. Our meetings in Valbyparken came to play a central role in the development of our own smart phone app. In the process of creating an infrastructure in our Living Lab, it had to be woven into the social gathering of our communities, and be accessible to the seniors, which made the local anchoring essential for make it recognizable to everyone. We might have been able to use an already existing application from the pool of applications that provide access to online communication, but with an essential goal of making it simple we decided to make our own.

To support the social interaction before, during and after meetings we wanted a tool that first of all – similar to Foursquare – could make people in the network visible to each other when they were in the park. Second, you should be able to get ideas and tips in situ on what you can do and how to both inspire and support the seniors when they meet on their own and play games or do other activities. A step towards supporting the continuation of the network beyond the project period as a tool for the social gatherings. Finally, one of the central design requirements was to make it simple and easy to use for the senior citizens who had little or no experience with the use of smart phones. Compared to the blog (will be explained later) the format of the app makes it more adaptable in the sense of being part of and present in the park when seniors are out there, and

therefore potentially take a role in the activities going on in the park.

AN APP DEVELOPED IN A LIVING LAB

Based on the above, the requirements for our first version of the app were that it must be local and based in Valbyparken, it should be possible to communicate with each other, to create activities and see what kind of activities others have created, and sign up for these activities. When our senior participants are in the park, they should be able to check in, see what activities are going on in the park, and who is present. There should be pictures of those in the network, and you should be able to contact each other by sending messages or making calls.

The processed material we have on the life of the app in the Network Zone is mainly from within the project period, where the app was introduced and slowly adapted to the practices of the community. It means that a showcase of the app, influences the question of the sustainable infrastructure for ad hoc social interaction in which the app plays a role that can continue after the project period, and will have to be demonstrated at a later situation. The following snapshots from our experiment are stories of the introduction of the app during the project period.

Figure 3: The entry page of the app: Green: See activities, Yellow: I am here, Red: Contacts, Orange: Create an activity.

THE NETWORK ZONE APP COMES INTO PLAY

The introduction of the Network Zone app for the seniors took place in small steps along the development and testing of the application. The first time the seniors tried the app was in mid-October 2011. We had hoped that it could be ready so we could try the different features together during our morning in the park, but there had been some trouble getting the app online, so

we had to first try a 'beta' version. The seniors got introduced to the app, but the feeling of being connected or creating something together with others lacked. We came a step closer the following week. The app was now online, and some of us met with five of the seniors, who would like to spend extra time in the park. "You can just tap on the green, and then..." said Janja. We were a bit surprised when we suddenly observed Janja starting to show Tekla how to use the app, since Janja herself had been introduced to the app less than five minutes earlier. Tekla smiled happily when she succeeded in signing up for an activity. "But that's me who's there," exclaims Anne-Lise. We showed her how to register in the app to get access, when she noticed a picture of herself. A moment ago we drank coffee, and now we were in the process of exploring the new app, creating new activities and joining each other's activities. However, there were still things that needed to be changed and fixed in the app, so unfortunately the seniors could still not bring the smart phones home.

THE NETWORK ZONE ON 'HOME VISIT'

In mid-November 2011 our Network Zone app was finally ready for the first 'home visit' with the senior participants after meeting in the park in the morning. We had prepared some small bags for the seniors along with the phones, which contained a kit with an instruction manual for the app, an inspiration scenario of use, a sheet with exercises and a sheet with some evaluation questions. The exercises with feedback possibilities focused on how to create activities and sign up.

We were excited to hear about the seniors' experiences with the Network Zone app and the smart phones during home visits. After five days we received an email from Anne-Lise:

Table 1: Email from Anne-Lise after she tried the app at home.

Hello.

I have used the Network Zone to suggest some activities. Next, I signed up for other people's suggestions. It has worked well I think. Unfortunately we were only 3 who had the phones with us at home, but when it works with 3, it also works with others.

I don't know if it's only me, but sometimes when I create an activity the program says: Sorry the Network Zone has stopped unexpectedly. Try again - force it to close. But the activity was created anyway.

I do not know yet how it will be, but for me I wish that I could subscribe to a date. I like to plan. Maybe under activity before signing up, you could read the tips for the game.

I have used the phone to take pictures, send SMS, MMS and make calls. It has worked flawlessly.

All in all a good experience.

Best wishes from

Anne-Lise

The email indicated that Anne-Lise had had a good experience using the Network Zone app, but there had been some issues. Still, Anne-Lise had managed to overcome the problems in her own way. This insight that also showed Anne-Lise's transformation as a smart phone user during the period of our Living Lab. She started out being very hesitant about using the phone and now she had not only learnt to manage the phone and use our app, she was also a critical user with suggestions and ideas for enhancing the Network Zone app.

Figure 4: Anne-Lise, Janja and Tekla trying the app.

PLANNING BETWEEN THE MEETINGS IN THE PARK

In order to make quick iterations and to give the seniors the opportunity to try out the application as part of and between our meetings in Valbyparken, the first version of the app had limited functionality. Focus was on testing the features that would support the possibility of extending the meetings in the park, i.e. that you could continue the dialogue, planning and negotiation at home between meetings. The implementation of the app in the Living Lab should give the senior participants the opportunity to take part in determining what activities should be arranged for our bi-weekly meetings. With the app, they could initiate activities, and everyone in the network could sign up for the activities they wanted to join. It was not only about trying out the specific features of the app, but as much or perhaps even more about rehearsing new practices around the app in the Network Zone. Questions we asked ourselves were what the app meant for the community, and what life could evolve around the use of the Network Zone? Could the app support the continuation of the community of the Network Zone? Questions, that need some time beyond the project period to get insight into.

As a means of communication and another element in our infrastructure, we had a blog for our Living Lab. The Web-based blog: valbyparken.blogspot.com, which later changed platform and name to: www.motionidetfri.dk/valby is functioning as a bulletin board where upcoming meetings and activities are being announced with time and place. At the same time, it is a window into what is going on, because there are almost always reports with pictures and stories about what has happened after a meeting in the park. In the beginning,

it was mostly members of the project group that were active on the blog, but slowly the seniors took over, and now (in the end of the project period, October 2012) they take full responsibility for announcing events and writing reports afterwards. An example of a report written by one of the seniors around the time when the project period ends:

Table 2: Erik's report on the blog after a Friday in the park.

Friday, 19th October, 2012

We met at 10.00 am and again to a glorious morning. It was 13 degrees and dry, though the grass was a little wet.

There were 2 new participants, so we were Birgit, Janja, Anne-Lise and Erik, Børge, Erik and Anni and Erik.

We splitted into two teams, one team played Disc Golf and another played petanque, so after almost two hours (with sweat) we went together to our base at the playground and the day ended with a cup of coffee.

A lovely morning with outdoor exercises. We'll meet November 2 at 10.00 am. You might want to wear boots / wellies because the grass is wet.

EB

Erik who has written the report, provides the readers of the blog with a snapshot of their day in the Valbyparken. What he emphasizes is who participated, what kind of activities they did together as well as other information about the weather and the next meeting. Readers of the blog will know the central information of the Network Zone.

In the end of the project period (Fall of 2012) the senior citizens had slowly taken over the responsibility for the meetings in terms of planning and negotiating about the meetings – and communicating on the blog as mentioned above. In early October 2012, at the day before a meeting in the park, we were curiously awaiting if there would be a meeting in the park and to see which activities the seniors had planned. "Walk in the beautiful park", says one of the activities. We noticed that Anne-Lise created it, and that the venue is at the playground. Erik also created an activity. It is Frisbee on the volleyball court, and Birgit suggested Disc Golf. It sounded like a nice day in the park, but we did not find any commentary on the blog afterwards.

The app and the blog were used together for planning activities before meeting in the park and evaluating on the meetings afterwards and in this way connecting the participants. How much interaction and dialogue there were before, during and after the meetings in the park seemed to vary, but the group of 15 senior citizens were still meeting in the park every other Friday around the time where the project period ended.

OPEN INVITATIONS FOR NEW PARTICIPANTS

As Erik's comment also indicates new people joined in, but how did they become part of the Network Zone and get access to the app?

The app is local for the park and is a service to the seniors who join the Network Zone in the park. There are many open invitations to become part of the network: the blog online, the physical manifestations in the park, and the meetings in the park. When the Network Zone members meet in the park, it is visible to others that something is happening. The same goes for the traces we leave behind between the meetings. Also, representatives from the municipality of Copenhagen working with senior citizens play a significant role, as they can disseminate information about the Network Zone in Valbyparken.

Børge is an example of that. He was suggested to participate in the 'Exercise in the outdoors' as a part of his rehabilitation from serious illness. He came into the network some time after it was established and after the app was introduced, but he quickly became a part of the social community. Børge was skeptical of computers and digital media, and did not initially take up the offer of getting a smart phone app with him home. The second time Børge was in Valbyparken, however, he had already changed his view on the Network Zone: "In my family, we have never used computers and smart phones, because we think that they separate people from each other. But now I can see that they actually can bring people together." Børge ended up with a smart phone as well (Yndigegn 2012).

Figure 5: The group of seniors in Valbyparken's winter landscape.

DISCUSSION

Initially, we asked: how can we design sustainable infrastructure for ad hoc social interaction?

Our design program encompasses objectives of wanting to design possibilities for letting social interaction emerge among senior citizens as a way of rethinking services of the municipality. A complicated setup, which also needs a period of use beyond the project to actually be possible to in some ways to talk about sustainability.

In our design experiment we established a living lab to try out the idea of an ad hoc community of senior citizens with focus on outdoor activities. The senior citizens and other partners were involved in the process and together we rehearsed new practices in the process of rethinking new services. In this part we discuss how we came about designing sustainable infrastructure for

ad hoc social interaction by exploring the relation between our program and our experiment by the two characteristics: Ad hoc and sustainability as the main criteria for the experiment and the development of the app. But this experiment also points to some issues of design after design and infrastructuring in relation to social interaction, which we will briefly touch upon in the end. In this discussion about ad hoc and sustainability it should be taken into account that we still need to process the empirical material of the period after the project.

THE MANY ASPECTS OF AD HOC IN THE NETWORK ZONE

What does it mean for the infrastructure that the social interaction we want to design for is ad hoc? And how did it play out in practice in our design experiment? As mentioned in the introduction, we wanted to address a wish among some of the senior citizens we were in contact with, of being able to adjust participation in community activities based on the mental and physical condition at the specific time of the activity. So, we tried to establish a Network zone in which the membership is fluctuating and not determined by formal structures, contracts or other regulations.

IN THE PREPARATION OF A (POSSIBLE) MEETING

"Ad hoc" also refers to the character of the things going on before the meetings in the park. As we reported in the section of our design experiment, we saw the seniors initiating activities by using the Network Zone app to suggest and sign up for specific activities: 'Walk in the beautiful park', one of the activities said, created by Anne-Lise, who also suggested that they should start at the playground. For the same day in the park, Erik also created a Frisbee activity at the volleyball court, and Birgit suggested Disc Golf. The app was used for planning activities before meeting in the park. The planned activities that appeared in the Network Zone app gave everyone an idea of what was going to happen, but just as important that *something* was going to happen, and that there were others who were going to come. And maybe also who is going to come which can be important for each individual when making the decision of showing up. Instead of just joining the already planned activities, it is possible to take an active part in both the planning but also in the ongoing negotiation or adjustment of activities that can be created through communication channels in the app. The ad hoc aspect of the activities relates to the negotiation that could be made just before the meetings when e.g. the weather determine wishes of change in plans: "shouldn't we meet on Monday instead, the weather is going to be nice." The introduction of the app and this possibility made the seniors part of the planning. They came with suggestions on what they wanted to do, but they still referred very much to the catalogue of activities that we had presented to them.

RE-DESIGN OF THE NETWORK DURING A MEETING

During our meetings we have witnessed how ways of organizing activities were very dynamic and ad hoc. Organization of activities is adjusted in the situation in the park based on the actual condition and mood of the seniors participating in the specific activity, weather conditions, availability of exercise equipment, and how many participants show up. In this last part the Network zone to some extent differs from existing ordinary activity catalogues for seniors in activity centers. We have not yet seen this in practice but adjustments of the activities or the overall program for a given day could be supported by the app. The app could facilitate an ad hoc redesigning of the gathering to make the community intact. Senior citizens arriving late, were still able to find the group by using at the function of signing in at a particular place in the park.

THE AFTERMATH OR IN-BETWEEN MEETINGS

The possibility of extending the dialogue with the app and blog supports the idea of making space for evaluation or openings for meeting again. Erik's messages in the report: "You might want to wear boots / wellies because the grass is wet" is a small evaluation of the meeting and a thoughtful message to those who will be attending next time. This creates a small connection between meetings and signal to people that there will be another meeting (we will meet again).

THE CONTINUATION OF THE FIXED FRIDAY

In the program we initiated, we wanted to establish a thick infrastructure (Telier 2011, p. 285) of social and technological elements that would support ad hoc social interaction. Our notion of "ad hoc" in the project group was often a perception that it also included (last minute/ongoing) changes in the agreements – such micro planning, that the especially the mobile phones have made possible. But when we recently visited the Network Zone and the elderly in the park it struck us that the simple structure in the form of a fixed arrangement with a fixed venue works for this local group of senior citizens. The fixed biweekly Friday - which was a set-up we started in the project period when the Living Lab was established to start somewhere - has survived the completion of the project and is continuing. It means for the senior citizens that there is a constant rhythm of meetings that carries their activities, but they have the ability to come and go - add or remove - depending on their mood, etc. on the specific Friday in even weeks. This puts a question mark on the actual use of the app and whether it has a role in supporting the ad hoc social interaction in this community.

THE SUSTAINABILITY OF THE NETWORK ZONE

What makes the infrastructure sustainable in the Network Zone concept when membership is fluctuating and not determined by formal structures, contracts or other regulations? Is it possible for the Network zone to sustain and continue after the project period? And what role does the app play in this continuation?

The process of infrastructuring came very much to be about connections between the human actors. When we initially had difficulties getting senior citizens to show up for the event, it very much complicated our experiment of establishing a thick sustainable infrastructure regarding the app or not. The Network Zone contained some fixed points such as the park, the base at the playground (see Erik's reportage), the meeting place by the lake and a tool shed with exercise equipment (a shed we gained access to after making arrangements with the park manager). These constitute some physical manifestation of the zone. But to create a thick infrastructure with the mutual constitution of the social and the technical (Telier 2011) the app, the blog with news and stories, the Friday-meetings in the park (if anybody shows) as well as representatives from the municipality of Copenhagen knowing about the Network Zone in Valbyparken play an important - maybe essential - role. However the body of the Network Zone is probably the senior citizens. As individuals they come and go as it suits their everyday life, but as a group it is persistent.

The project group's participation was temporary in the sense that we had to withdraw ourselves from the Living Lab, when the project period ended. This meant that in the process of infrastructuring, it was also about transferring the responsibility for the continuation of the Network Zone to (some of) the elderly, and people from the municipality of Copenhagen, who would continue to have a connection to the community. On the one hand, a fine transfer process slowly happened, in which the introduction to write on the blog and the app meant that the senior citizens began to participate in the planning and the evaluation of the meetings e.g. Erik's reportage on the blog. It was also reflected in the small interaction in the park, for example when Janja explained Tekla how to sign up for an activity. We also experienced some of the senior citizens helping each other when some had problems with finding the camera, finding the pictures they had been taking and now had disappeared or to reload the app, when it had been unused for a while. On the other hand, there was a challenge in the process of infrastructuring in creating links between human and non-human actors regarding us – the project group – who for a long time had been part of the Network Zone. We also accounted for a large part of the social community. The question is what it means when we build this scaffolding around social interaction, but end up removing a part of the content in the form of ourselves? How much of the sustainability is about us being part of it - and what does it mean for the possibility of the Network Zone to continue after the project is completed. When we last visited the elderly in the park we were greeted with comments like: "It is not the same as when you were part of it" and "please, come again, it's good for us to meet with other (younger) generations". None the less there is still a group of senior citizens (approximately 15) that continues to meet every second Friday. Sometimes they are all showing up and at other times they are maybe only five.

TO SUM UP: INFRASTRUCTURE BECOMES SUSTAINABLE THROUGH USE

In this paper, we have pointed out our experiment of how we tried to create a sustainable Network Zone for ad hoc social interaction among senior citizens. Even if use is not regulated through any contracts, formal rules or the like, we have pointed to how an infrastructure can support the hoc social interaction and be sustainable through participants' use and ongoing adjustments on top of the Network Zone of the physical and digital manifestations we spun underneath their activities.

How much interaction and dialogue there was before, during and after the meetings in the park varied, but the infrastructure is there and support members of the Network Zone (or 'Exercise in the outdoors', as it is now called), who would like to meet in the park. With the app as one of the elements we have spun a web under the community, which means that the Network Zone Valbyparken continues even when the project is completed. The dialogue and activities continue with the seniors at the helm. It is a portable foundation with some fixed points besides the app such as specific places and items in the park and a blog with stories about what has happened, which is persistent even if other actors - project members, other partners and the various seniors who have taken part - come and go. The app will live a life when it is used by the community. We have created an infrastructure for ad-hoc communities that are locally rooted, but the sustainability of the network zone is established through use.

So, would it die if the people using it now were not there anymore? Maybe? But some of the 'stable' elements of the Network Zone or 'Exercise in the outdoors' e.g. the app, the online blog, the sports instructor and the people from the municipality are now wrapped together as a service concept and is going to travel to other parks in the area of Copenhagen, where the idea is to establish new communities of outdoor exercises building on the experiences from our Living Lab.

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