ALL I NEED: PROVOKING CONFLICTS AT THE BOUNDARIES OF THE PRIVATE AND PUBLIC SPHERE IN THE CONTEXT OF ENERGY SUFFICIENCY

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ABSTRACT

This paper describes development, use and benefits of participatory research and design methods within an interdisciplinary research project which focuses on energy sufficiency in domestic households. Special emphasis here lies on a gender-conscious care economy (see Brischke, et.al. 2014), since technical devices within a household are predominantly used for supply and provision tasks. Merely proposing the reduction of use of the devices would be hardly sufficient and possibly turn out to be at the expense of already disregarded care economy.

INTRODUCTION

Consequently energy sufficiency does not imply reduction at all cost, but according to individual circumstances. To achieve this goal in a gender-equitable manner, is in the point of view of the authors, only possible if the perspectives of users are properly included in the process. The research design provides this through an open multi-level process which consists of three major phases, including the phase of sensitizing users for the problem space through the use of cultural probes, a phase of discussion (and dissensus) by using conversational artifacts within collaborative workshops, and a phase of reflection, where users discuss their artefacts within a larger setting. These phases show an approximation of the process leaving out incremental adaptions of the methods. Furthermore, this paper provides insights on how to construct designedly methods in such a way that project partners without a design background are also able to draw conclusions for them and maybe adapt them for different contexts. It introduces and emphasises the 5th »lessen« of sufficiency and presents relevant findings of the first research phase. Finally, certain open issues and challenges for interdisciplinary teams are brought up, which need addressing in the future.

Aim of the research project is thus to investigate why usages even occur and which requirements are met with them. Only then can alternatives be developed through which you are able to preserve resources. *Energy sufficiency* is in this sense necessarily aimed at reducing absolute energy usage complementing the strategy of *energy efficiency*, which reduces usages according to size and volume and *energy consistency* which aims at the increased use of renewable resources.

ENERGY SUFFICIENCY

Under the banner of "Energy Sufficiency", the German Ministry of Education and Research, facilitates a three-year interdisciplinary research project. The research consortium consists of the Ifeu Institute for energy and environmental research, the Wuppertal Institute for Climate, Environment and Energy, the research center of Sustainability and Climate Policy as well as the Design Research Lab of the University of the Arts Berlin. Within the team, one of the specific challenges was multidisciplinary and how to deal with it across different tasks and regarding transfer of preliminary

results. Diverse perspectives and differing philosophical and methodological approaches had to be leveled along the way through constant interaction between the members of the group. This lead to rather constructive group dynamics which resulted in truly interdisciplinary ways to approach certain questions and to be able to include other's preliminary results early on in the process.

Initial starting point of research is the assumption that there are certain courses of action which can be categorized in *reduction*, *substitution* and *adaption*. Quantitative *reduction* in this case does not impact the quality of primary usage. In principle the same use aspects, necessary reliefs and demanded technological benefits remain the same while made use of less often. The second course of action aims at *substitution* of energy-relevant consumption, use of technology, lifestyle or aspects of provision.

Following the third course of action, the research team has come to the agreement to understand energy sufficiency rather as the *adaption* of benefits to actual needs than abstinence and asceticism, to facilitate everyday life instead of stressing consumers with additional loads (Brischke, L.-A. & Thomas, S. 2014). This approach is based on the four sufficiency strategies Entrümpelung, Entschleunigung, Entflechtung and Entkommerzialisierung (Sachs, 1993) which have been translated by Zahrnt and Schneidewind as "'four lessens' (with a conscious play on 'lessons'), which express the idea that we need to lessen our speed, our distance, the encumbrance of our acquired possessions, and the role of commerce and the market in our lives." (2013: 14)

For the approach to the research and the interdisciplinary nature of it, it was necessary to add an additional dimension to the 4 »lessens«, one which can be subsumed as »lessen dependencies«. This implies emancipation in the form of strengthening self-determination and reducing alienation from oneself and ones surroundings (see Brischke, 2014). These five E's are to mirror strategies of consumer's relief of strain rather than shifting even more responsibility on them and to burden them with a bad conscience.

INCLUDING PARTICIPANTS
The research team's explicit goal is to investigate actual consumption levels towards causes and motives, in order to derive possible constraints for sufficient behavior patterns. The Design Research Lab's task in this endeavor is to adapt methods and processes of design research to the given context in order to allow to include consumer's perspectives into the research process.

Participatory design as an attempt to actively involve various stakeholders in a democratic innovation process, has evolved from its explicitly political roots in the Scandinavian workplace movement in the 1970s into an approach that has been taken up by many different design disciplines such as software design, urban design, product design or interaction design (e.g. Björgvinsson et. al. 2010, Sanders 2008, Lengwiler 2008).

This approach also takes hold in the discussion about sufficiency, where use, waste and even the lack of resources can be seen in multilayered assumptions by various stakeholders. In this sense sufficiency is asking for enoughness. What constitutes this „enoughness" to whom? Where scarcity ends and excess begins can - in this pluralistic society - only be fathomed in an individual, maybe contradictory and context-dependent manner. Thus the inclusion of diverse stakeholders into the exploratory process is vital.
In his working paper „Weder Mangel noch Übermaß" Manfred Linz (2004) inquires whether any social class or lifestyle group may be responsive to their enoughness.

Obviously this leaves the unpleasant aftertaste of patronizing and reducing consumers, that act and behave in a complex surrounding. What we want to achieve are less concrete definitions of enoughness for single situations, but the meaning of subjective perceptions or affective reactions to certain structures which help to learn more about drivers for sufficient or non-sufficient behavior. Participatory methods provide manifold possibilities to capture the inherent meaning of decision processes and to develop conclusions from it. The design approach assumes in this context, that even seemingly irrational actions are borne by a specific operational rationale. A broader understanding of these subjective, possibly contradictory meanings can lead to the design of infrastructures which facilitate sufficient behavior and help deconstruct barriers that lead to it.

In the project on hand, a multi-stage process was deployed, consisting of a set of conversational methods. In the first stage, cultural probes where introduced on the one hand to sensitize the participants with the subject matter and the research team and to get insight of the private sphere of the participants. In contrast to a quantitative study of participant's actions, a researcher is able to see a more diverse and personal side of the participant and their information. Though fragmentary, this qualitative data may give a more detailed account of the actual participant. Cultural probes do not generalize, but – if well constructed – dig deep into the participant's lives. Most probes describe elements of uncertainty and ambiguity (Gaver, 1999; Mattelmäki, 2004, Graham, 2007), even if the instructions are quite specific. We see these qualities as crucial when researchers are interested in the subjective interpretation of probes by researchers and participants alike. The finished probes should serve as starting point for conversation as well as resource for designing interventions together with stakeholders.

In the second step ideation workshops helped to visualize subjective perceptions of electric power consumption and desires of the participants the ease their everyday life. From this point the *Papercut Role Play* was developed to provoke conflicts at the boundaries of the Private and Public sphere, to identify obstructions of sufficiency strategies regarding the co-consuming or outsourcing of housekeeping occupations. There was an adaption of each workshop in the process which meant that outcomes and insights from one were directly incorporated in the design of the next. Furthermore, the methods were adapted to the respective contexts of the participating stakeholders.

SELECTION OF PARTICIPANTS

The investigation of energy consumption of private households intrudes into the private sphere, where it meets individuals who are deeply intertwined with their surroundings which partly determine their everyday behavior to a great extent. To exclusively look at the micro-level of single household members and their personal affairs, their quality of life, the compatibility of their work life to their regeneration time, would be an oversimplification. Consequently a look at the meso-level of the household is crucial, which also incorporates the interests and concerns of third parties, e.g more vulnerable partners into the process. Sufficiency strategies have to be compatible with social, financial and temporal contingents in order to be implemented.

Therefore it was crucial not to separate participants from their living environment, but to conduct the workshops in familiar surroundings to include their actual living settings. Furthermore it was obvious to work with existing groups of people rather than randomly selected individuals. This is also due to the fact that certain sets of problems could be dealt with within the actual community, since some potential sufficiency strategies might be connoted with cultural methods of sharing, handing over or consolidating something. It seemed reasonable to turn to existing groups, neighborhoods, organizations or clubs that are already connected through their everyday life and that are interwoven in an active social fabric.

To get a broader understanding of the contexts, groups in different phases of their lives were approached: A youth club, an cooperative's intergenerational club, a seniors computer club and a seniors-club of a church congregation, whose participants were between 70 and 90 years old.

The first difficulty which arose, was to convince the groups that their participation was worthwhile to them and the research team. Notably they all pointed to lack of time as the main barrier for participation. Taking a closer look at this fact, there had to be some other reason for their reluctance. Some of the groups asked for (in some cases several) meetings in order to discuss the scope and aim of the workshops as well as their

tasks and potential benefits. These pre-meetings were sometimes more time-consuming than the workshops themselves. It turned out that the groups felt that the workshop theme and aim did not resonate with them enough and they even developed a sort of defensive reaction towards the research team and topic. Even though the project explicitly pointed towards centering around the consumer, the project title "energy sufficiency" did quite some harm. The potential participants argued that the only goal might be to teach them how to save energy. In contrast to the youth club's rather mild reaction to this, the cooperatives and senior clubs were more harsh in their assessments. Members of one seniors group even proclaimed that their everyday life was at stake, before they were skeptically agreeing to participate.

PRACTICAL EXECUTION

STAGE I: HANDING OUT CULTURAL PROBES
In 1999, Gaver and colleagues introduced the method of the cultural probe in their project "projected realities". Inspired by early situationist ideas of radical subjectivism, they argue that one of the main strengths of a cultural probe is its ability to inspire new perspectives and interpretations, by obscuring meaning, providing ambiguous ways of interpretation. They draw participants away from their usual perception of their everyday lives (Gaver & Dunne, 1999). They include open-ended, question-based elements that animate participants to narrate rather than deliver precise data. Since that time probes have been developed further and used in various research settings and with different characteristics depending on the subject matter and participants, e.g. in technology probes (Hutchinson et. al., 2003), empathy probes (Mattelmäki, 2002), mobile probes (Paulos, 2009) or urban probes (Paulos, 2005). Graham (2007) elaborates on common elements of all probe approaches. These similarities include that they are "capture artifacts", provide (auto-)biographical accounts, make the invisible visible, treat the participant as expert and prompts a dialogue and conversation between different actors. In any case, they are put together in order to inspire reflection by the participants. Probes can be used as very targeted means of inquiry in settings that a researcher may not be able to enter or interact with the people he intends to investigate.

Using Cultural Probes as a means of entry for collaboration with these highly skeptical participants proved to be the right decision. Without invading their privacy, we were able to learn a great deal about them while strengthening their trust into the project. During the preliminary discussions we already found, that in some cases the participants had highly biased points of views regarding the topics of energy use, resource protection and sustainability. An investigation which is targeted into the private living environment

appears to pose a threat against which habits need to be defended or even concealed.

In order to achieve a meaningful information output through deploying the Cultural Probe Kit, a categorization of good and bad or right and wrong was strictly avoided during its design. It was rather constructed to openly and intensively approaching participant's fears, opinions and prejudices, consequently showing that they willingly talked about the stresses and strains of their everyday lives and felt taken seriously. In the process of doing the Cultural Probe they were convinced that their personal concerns were vital to the development of new sufficiency strategies.

Figure 1: Cultural Probes

STAGE II: HANDS ON IDEATION

When looking at energy consumption as a consumer good it seems quite abstract, making the search for the appropriate measure or amount a difficult task. After all, the end consumer does not need the electricity, but the device that in turn uses electricity to function. Whether this electricity originates from a battery or wall outlet does initially only hold practical implications for the user. How much energy is ultimately used cannot be directly experienced by the consumer. Also it is unclear how exactly energy efficient a device is, whether e.g. the heating of water or the rotation of a motor draws more energy, how usages are distributed amongst devices or where additional energy usages are to be considered. Sensory stimuli like for instance the sound

volume of a motor or the screen brightness of applications do not necessarily correlate with the quantity of energy usage.

A more or less well-grounded notion which device or application uses more or less energy is likely to diverge from the actual usage. On the one hand this possibly results in prevention strategies regarding less decisive areas within the home. On the other hand there might be a lack of awareness for energy usage in other areas.

Thus, instead of asking where to reduce, it showed to be beneficial to ask how much exactly is needed and which aspects are troublesome and stressful. This lead to the working title "All I need is home" which shows an incorporation of the user's perspective and the five "lessens" of sufficiency as mentioned earlier.

Figure 2: What do I need at home?

In daylong workshops problems of the everyday life were isolated step by step together with the participants. Subsequently these problems were aligned with their personal wishes and the resulting ideas were discussed, visualized and adapted depending on the interest and skill of the group. Whereas the adolescents rather dealt with free and almost revolutionary concepts, which they visualized in three-dimensional prototypes, the senior citizens merely furnished a toy container according to their needs. The ideas and comments of all participants were then transferred to a toy container which was in

turn used for other groups as a foundation for discussion. This developed into a small discussion game with the "home" container, which was later complemented by an outside one. Thus the participants were able to playfully react to ideas from other workshop groups while the container over time evolved into the symbol of what we need.

STAGE III: PROVOKING CONFLICTS
Initial workshops showed to be exciting whenever there was dissensus within the small groups. Especially in the work process as well as during intermediate presentations, when participants voiced their beliefs and ideas to the rest of the group, aspects emerged which called for compromise within the groups. The adolescent's group e.g. discussed vividly, whether a penalty should be inflicted because of the neglection of a communal vegetable garden for self-sufficiency, whether one could be independent of landlords when DIY-hacking the heating system or could vent used clothes in specially developed air-ducts
In contrast, the senior citizens did not voice their conflicts as loud as the adolescents. Here, two elderly women who furnished the toy container together, decided to include both a radio and a television set, even though each only used one of the devices and not the other.

The same happened in other groups concerning shower and bathtub or smartphone and computer. Despite fast consensus, in this case to keep both, discussions about difficulties with barrier-free homes, computer games against insomnia or fears resulting from depiction of violence in the media emerged through these short conflicts. It was an unlikely assumption for us to imagine senior citizens to fight about how they want to play computer games let alone the fact that they even want to play computer games. It came to light that playing computer games was even seen as a possibility to overcome loneliness and grief. One of the participants noted that she uses computer games in order to counter progressive calcification, another uses her smartphone to meaningfully bridge the hours between an early awakening and sunrise. In the follow-up discussion about computer games in everyday life - which was initially triggered by playing with the object cards given to the participants - interesting information about computer games for the elderly was accumulated, which we would never have imagined beforehand. We discovered these conflicts between participants only because we explored the more basic meanings of computer games or doing laundry.

A cut-out construction paper formed the foundation for this next scenario which was supposed to more profoundly contrast the individual norms and boundaries of participants. Three different-colored shipping containers and numerous items of everyday life could be cut out of the paper and glued together. The first exercise was to differentiate the three

containers in private, semi-public and public. How would participants furnish their private container, who would have access to the semi-public and what its content would be and finally, how public the public container should be.

Figure 3: Setting up the shipping containers.

Public could imply that a communal area for the surrounding neighborhood is developed which contains garbage cans, a laundry or a bicycle storage-room or something entirely different. It could also imply that the area should be open for a broader public, as it would be the case with public libraries, workshops or restaurants. After participants furnished their own three containers, they were supposed to "settle" at the group's table, think of the infrastructures that would be needed and draw them directly on the paper table-cloth. The ideas ranged from paths, bus-stops, shops, kindergartens and gardens to highways, woods and lakes.
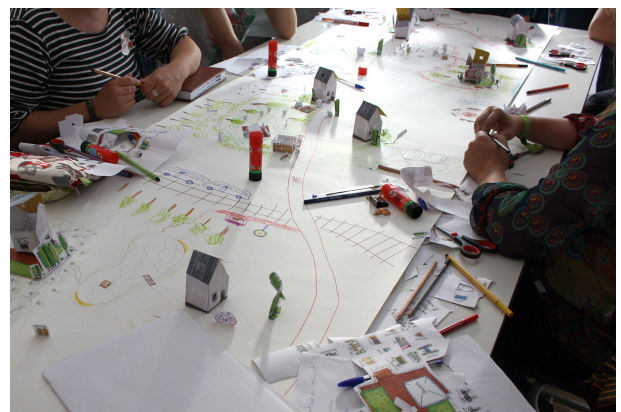

Figure 4: Building a village out of shipping containers.

This task free flowed into the third exercise - recognizing their own neighborhood and the other containers on the table. What are the implications for the neighborhood and how could neighbors consolidate

their infrastructures? Which parts of the semi-public and public could be combined, what is really needed?

Most of the time this part automatically arose from the previous, without any instruction from the the workshop conductor, whose task in this case was to encourage the participants and be receptive for areas of conflict.
One of the participants e.g. built a fence around his small garden which immediately drew protest from his neighbors, since they also wanted to use the garden. Instead of bringing down the fence, we discussed the function, meaning and pros and cons of the fence. It was important in this context to slowly blur the boundaries between good or bad and right or wrong.
Whoever is willing to share resources is not better or worse than someone who cannot or does not want to share certain things. This design game helps shed light on the motivation behind these decisions since it evokes conflicts which help better collect all the voices involved. By having every participant physically build and position his own space, the inclusion of usually more quiet participants is facilitated. Discourse develops of course through the interaction amongst participants, but is fueled by materialized negotiations on paper.

RESULTS

The process showed that rather than focusing on the material aspects of setting up a paper city, the workshop's strength were the verbal negotiations, anecdotes, stories, fears and issues of the participants which shed light on the process which leads to the physical outcome. The degree of participation remains quite limited. Although the participant's statements indeed form the core of analysis, their active contribution is something entirely different. We arrived at this form of participatory research, since we believe that only the actual consumers of energy can shed light on when, how, why and to what end resources are needed. Consumers have the full responsibility to take decisions for themselves on a micro-level and their direct surroundings on a meso-level. Our goal should not be to burden responsibility on a macro-level upon them, but to involve them into decision making processes in an open and discursive way.

As in many interdisciplinary projects, some parts of negotiating certain ideas, problems and methods took their time. At the very starting point, we could not foresee wich route we would follow and which would lead to a dead end. It turned out very soon, that the project title itself was the first barrier for working with participants and at the same time this problem illustrated the repletion of „saving" energy. Even deeper fears that the project could try to question the participant's everyday life came to light.

The biggest difference we stated between the different groups was the internalization of issues like technological innovations and cultural change on the side of the adolescents whereas for senior citizens these topics were more related to efforts of staying up-to-date. Correspondingly the younger participants spent much more energy developing almost revolutionary visions, whereas seniors strongly stated, that they could not influence a world full of limitations. But even this down-to-earth view sparked unpredictable strategies for energy sufficiency. Where the adolescents created new architectures with vertical gardens and air ducts in which worn cloth can be ventilated and stored invisibly, the seniors discussed the possibility of hacking a toaster for using it in place of an oven or how multiway connectors could be installed to switch off all electrical devices at night time.

The most unexpected finding, was that playing computer games wasn't such a big thing in the group of the participating youngsters, but a rather big topic for senior citizens to face insomnia or grief. Our expectations regarding co-consumer strategies were mostly fulfilled by the younger generation. We anticipated that many of them would live in flat-sharing communities or have a direct or indirect experiences with it. We did not foresee the fears of seniors about approaches of sharing, outsourcing or co-consuming that are related to the loss of control, self-reliance and in a worst case scenario with retirement homes. With our Papercut Landscapes we were able to illustrate vividly that the subjective boundary of the private sphere of each participant can look entirely different and that it is hard to find consensus as to where public boundaries should pass. Hereby, we tackle the really painful trigger point of what is mine, yours and ours, what the solutions are for one group and why it is impossible to participate for another.

All these insights formed an idea of what could ease everyday life and where are limitations of certain strategies. Alternative infrastructures would have to address these restrictions. In next steps it would be enlightening to inquire more deeply into the invisible barriers and drivers. The Papercut Role Play arose in the course of the research process. Now it enriches the collection of participatory design tools to be transferred to new contexts.

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