Women’s Phone - a Case Study on Knowledge Management in a Participatory Design Process

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Abstract
In this paper, we introduce an approach to manage qualitative multisensory data assembled in a participatory design process. As design researchers, we search for an efficient and sustainable way to transfer our research results into the design practice. Generally, we are interested to establish a holistic approach from research based on user sensitive research methods and intensive user involvement to appropriate ICT (Information Communication Technology) applications, communicated in a corresponding way on the market. In this paper, we focus on the transfer of research findings into design concepts.

We present a case study called ‘Women’s Phone’ where we investigated women’s ordinary life asking about their habits, needs, demands and desires towards mobile communication. We aimed at gathering inspirational data for creating mobile applications from an explicitly female perspective without addressing and confirming gender stereotypes. We established a participatory design process applying design specific methods like Cultural Probes and Prototyping that made the test persons to co-researchers and co-designers. Confronted with diverse materials like photos, collected artefacts, diaries, samples of flavour etc. we faced the challenge to structure and analyse them with regard to the following aims:

- to derive qualitative insights about the mobile communication demands, desires, habits and visions of the female user group
- to communicate the gained research results to become the basis of customer, respectively user appropriate product and service design concepts for future mobile communication

For this purpose, we developed a cognitive tool, called ‘Design Knowledge Management Model’, to sort the research results with regard to the design of new ICT products and services. The application of this tool is specific for a design research context, but it also addresses marketing issues. In this paper, we explore the applicability of this model in the following respects:

- its contribution to a systematical organization and analysis of research results with regard to the process of ideation
- its benefit to reflect and argue design decisions in reference to research findings
- its contribution to communicate the qualitative complexity to design practitioners

Referring to one of the developed design concepts, we exemplarily reconstruct how this concept is located within the ‘Design Knowledge Management Model’ by making the relations between research findings, ICT components and addressed design areas explicit.

Keywords: Management of Design Knowledge, Design Research Analysis, Design Rationale, Participatory Design
1. Introduction

‘Women’s phone’ is an exploratory research project which is allocated in the overlapping field of ICT (Information Communication Technology), gender studies and design. It aims at gathering female sensitive data for the development of mobile devices, services or accessories which address real female needs and demands instead of confirming existing clichés.

This project is part of our research field called ‘G - gender inspired technology’ which aims at supporting a gender appropriate ICT development from a design research point of view. We strive to establish an overall gender conscious design approach which faces not only the challenge to make cultural construction of gender transparent, it also serves to provide and apply appropriate methods and tools which lead to gender sensitive knowledge, finally as a basis for – in this case – female appropriate products. In this respect, we have to communicate our research results to different stakeholders – in our case to scientists, design practitioners and business people. On the way from user generated research findings to ideation and finally user appropriate design concepts and ICT solutions, there are different gaps which lead to the problem of transferability. We as design researchers want to make sure that all stakeholders dealing with the inquired research findings do it in a sensitive way. Referring to the issue of gender, we particularly face the risk of reproducing stereotypes. Although there is research about design reflected from a feminist point of view [1-4], we observe that designers are not enough sensitized for the gender dimension within their practical work. Their products and services often seem to be based on so called I-methodologies [5] which result from the producers’ - often unreflected and unconscious - individual assumptions about usage and users instead of questioning and investigating them. Additionally, the ICT domain is still a male dominated area where female concerns are often not appropriately reflected. Referring to the current portfolio of mobile phones which explicitly address female customers, we indeed discovered a design strategy which corresponds to the cultural stereotype of femininity. This strategy negates the technical character of the device by disguising it as jewelry. Moreover, design in this sense is reduced to interfacial cosmetics on a formal-aesthetic level.

For these reasons, we set up a research project, putting female users in focus. We established a participatory design process with 7 female participants who were identified as lead users [6 - 8] for mobile communication. We formulated the following requirements as a basis for our research process. Gender sensitive research and its application on gender sensitive ICT design are

- at first, a matter of appropriate methods and tools which
  - support us to collect gender sensitive insights and avoid a stereotypical view on the target group
  - provide the design practice with inspirational data for ideation
- at second, a matter of identification and recruitment of trend-setting users who are supposed to deliver insights for innovative concepts and ideas
- at third, a matter of communicating complex multisensory research results to design practitioners and other stakeholders without loosing their informational richness

In this paper, we focus on the latter aspect and ask:
- How can we cope with the high quantity and variety of the research results?
How can we systematically order and analyze the amount of diverse qualitative data with regard to the process of ideation and product development?

How can we accelerate the transfer of research findings into design concepts?

How can we prepare and communicate the qualitative data sensitively and efficiently to different stakeholders?

How can we reflect design ideas and argue decisions referring to the research results?

For these purposes, we developed a kind of cognitive tool, called ‘Design Knowledge Management Model’ [Fig. 5], we present in this paper. It focuses on the relationships between qualitatively diverse research findings, ICT components and design tasks.

2. Background

Designers have the task to develop future ideas and concepts for products, applications and services. But what role does research play in this context, and what are the starting points for design research endeavors? There are different motives and needs for starting a research process, we will briefly discuss three of them. One is taking an existing artefact and aiming at an optimization. This would be an incremental innovation for a product or service. For example, when an existing application has to be optimized, there is already precise information about the user group and the purpose of use. Secondly, an upcoming technology might be a trigger for starting research. In this case, a scenario for usage might be missing. The designers then can analyze the requirements and potentials of this technology and develop application scenarios. By doing this, they determine the context of use, potential target groups, functionalities and alike. By developing a prototype, the respective technology can be experienced, tested and evaluated by potential user groups. Within the research process the designers get information about the benefit and practicability of the prototype in reference to the applied technology, different contexts and user groups. Thirdly, everyday life of a certain group of people might be a trigger for a research process with regard to develop new applications and services which may enhance existing situations, just make them more enjoyable or even offer new experiences. In this case, we have a human-centered and research-based design exploration [9] which requires research methods and tools to deeply understand people and get an idea about their lives, tacit emotions and desires. In our research project, we followed this third approach.

2.1 Knowledge for innovative Ideation

We started from investigating a certain target group - female users - with the aim of developing female inspired ICT products, services and application. We did not really know about how the attitudes, habits and desires towards ICT differ within this human and technological spectrum. Aim of the research process was to get an idea on specific communication habits and needs of different individual users. In order to create and develop new applications, we do not only need to know about general aspects of female users. This kind of information provided by quantitative market research is often too unspecific for our research purpose. For the design process, general and descriptive information is not enough because it informs about general tendencies or the status quo. But it does not inform designers about what could be.

For this reason, design researchers have to provide inspirational and projective information as benchmarks for new applications. To inspire the design process we need rich data on preferences for certain materials, colors, about the use of different media, about the structure of the social network, and alike. This requirement has a
crucial impact on the research process and the applied methods. In this case, research has to be exploratory and necessarily qualitative. It aims to gather inspirational data which informs the design process in a multisensory and prospective way. Such information is not directly accessible or communicable, because it belongs to people’s partly conscious or unconscious layers of knowledge and experiences. Accessing these layers, methods have to be used which make people express their tacit wants and desires.

3. Research Process and Methods

We advocated for an intensive involvement of potential female user who were identified as lead users according to von Hippel’s concept [6, 7]. We recruited 7 female users from 25 to 35 years old. All of them were living in a metropolitan environment, were employed, had an academic education, a similar cultural background, but differed referring to their social status (single versus family). They were all heavy users of mobile communication.

We set up a research process using Elizabeth Sanders’ participatory design approach as a research framework [10 - 12] which supposed to fulfill our essential research requirements. She provides a model [12] about the relation between people’s utterances and the addressed level of experiences. According to this model, we structured our research process [13] and selected methods to access different levels of knowledge [Table 1].

<table>
<thead>
<tr>
<th>SANDER’S MODEL</th>
<th>WOMAN’S PHONE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What people:</strong></td>
<td><strong>Level of Experience/ Knowledge</strong></td>
</tr>
<tr>
<td>Saying say think</td>
<td>explicit</td>
</tr>
<tr>
<td>Doing do use</td>
<td>observable</td>
</tr>
<tr>
<td>Making know feel dream</td>
<td>tacit</td>
</tr>
<tr>
<td></td>
<td>latent</td>
</tr>
</tbody>
</table>

The methods enabled the participants to express themselves in different ways (‘saying’, ‘doing’, ‘making’) and to access different levels of experiences and knowledge. They promised to provide us with gender sensitive information about real needs and demands of female users as well as deliver multisensory information reference points for ideation and new design concepts.

In the following we describe the research phases, the applied methods and give an overview of the qualitative diversity of the respective outcome that was matched to possible design contributions. The qualitative overview was the first step on the way to our ‘Design Knowledge Management Model’.

**Research Phase 1 - Introduction:** We organised a first meeting in one of the researcher’s flat to have an informal and private atmosphere. We sensitized the female participants for the research issue and started a discussion about the subject of inquiry. We used associative terms referring to mobile communication and pictures of females which were proposed for a visual self-description of each participant [Table 2].
Table 2: Research tools, research purpose, qualitative design related outcome of research phase 1

<table>
<thead>
<tr>
<th>Research Task &amp; Tool</th>
<th>Research Purpose</th>
<th>Qualitative Dimension</th>
<th>Epistemological/ Design Contributions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Characterization by Images</td>
<td>Self Evaluation or Projection</td>
<td>photographic</td>
<td>Personal properties/ character Personal style Personal values &amp; norms Personal projection/ idol</td>
</tr>
</tbody>
</table>

**Research Phase 2 - Self-Observation by Cultural Probes:** We implemented a phase of two weeks self-observation based on the method of Cultural Probes [15]. Within the introducing meeting, the participants were given a toolkit with different materials and tasks [Fig. 2; Fig. 3; Table 3]. These probes are a set of playful and visually-oriented tasks and questions that offer different possibilities to express and document the everyday life, behaviour and habits. They establish uncommon views on daily routines which make the probands think and support them to express their insights in different ways (verbally, visually, artefactic) [Table 3]. The probes were tailored to the specific research context, addressing the focus group and research purpose. By creating them, the research process itself became a design process. Probes can be defined as materialization of the design researchers assumptions and hypotheses.

![Fig. 2: Toolkit - (probes 1) and 2) are missing)](image)

![Fig. 3: ‘Social Map’ 2)](image)

The phase of self-observation does not originally belong to Sanders’ participatory design approach. We added this phase to gather data within the daily environment of the female participants without being influenced by a laboratory situation like during the third research phase. By embedding the Cultural Probes into this research framework, we change their originally purpose. Using them within a participatory design context [10 - 12] means to define them not only as a tool for ideation as originally defined by Gaver et al. [14, 15] but also as tool to gather user - in this case female - sensitive data as a basis for developing user appropriate products and services [16 - 18]. In this sense, we suggest Cultural Probes as a research method of participatory design research and user driven innovations.
<table>
<thead>
<tr>
<th>Research Task &amp; Tool [Fig. 2]</th>
<th>Research Purpose</th>
<th>Qualitative Dimension</th>
<th>Epistemological/ Design Contributions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Photographic documentation: A disposable camera with instructions for taking specific pictures (e.g., ‘the favourite place to be’, ‘the telephone’s place’, ‘the pet’)</td>
<td>Personal Insights into interior, taste, style, life (Documentation of pet, favorite piece of clothing, favorite location for calling, favorite device, content of the handbag, favorite communicant)</td>
<td>photographic, visual</td>
<td>Personal style/ taste Life style Product design aspects Formal-aesthetic preferences Spatial preferences</td>
</tr>
<tr>
<td>2) A Social Map with coloured self-adhesive dots and pictograms to visualize one’s social network (friends, family, and colleagues) and preferred ways of communications with each person (e.g. sms, mail, mobile phone) [Fig. 3].</td>
<td>Geographical and social density, dominant ways of communication (face-to-face, via phone, online, postal)</td>
<td>Visual, spatial, behavioral</td>
<td>Social network Locality/ internationality/ cultural influences Personal focus Preferred ways of communication</td>
</tr>
<tr>
<td>3) ‘Calling Diary’ of communication partners, the form of communication and the associated thoughts and moods.</td>
<td>Social network, dominant ways of communication, activity and intensity of communication</td>
<td>Verbal, analytical, behavioral, emotional</td>
<td>Communication behavior, habits and attitudes General communication activity Communication activities in dependence of time center within social network purpose of communication accompanying moods/ attitudes towards communication</td>
</tr>
<tr>
<td>4) Postcards providing open-ended, partly playful questions (e.g. How would you call your mobile phone? With what other technical device would it fall in love?).</td>
<td>Focus on attitudes, relationship, emotions, habits towards mobile phone/ mobile communication</td>
<td>verbal, narrative, visual (sketches), behavioral, emotional</td>
<td>Product design preferences Interaction and service Design Preferred language to deduce aspects for marketing communication Concepts and ideas Scenarios for Interaction and Service Identification of central topics (females are dealing with) emotions/likes/dislikes behavior/ habits ideas, preferences of form behavior of device current device, dream device preferred, desired communication modes</td>
</tr>
<tr>
<td>5) A Bag to collect olfactory and sensual samples.</td>
<td>Collecting things</td>
<td>visual, artefactual, haptic, olfactory, tasty</td>
<td>sensory preferences to deduce product design aspects, interactive and behavioral aspects</td>
</tr>
<tr>
<td>6) Material samples for using them to answer the questions.</td>
<td>Visualization, materialization of answers</td>
<td>verbal, visual, haptic, behavioral</td>
<td>formal-aesthetic preferences to deduce product design requirements behavioral aspects Sketches of concepts and ideas</td>
</tr>
<tr>
<td>7) A blank Notebook for drawings, collages, to collect things and thoughts.</td>
<td>Free space for notes, thoughts, emotions, stories, sketches</td>
<td>verbal, visual, narrative</td>
<td>Concepts &amp; ideas Scenarios for Interaction and Services</td>
</tr>
<tr>
<td>8) A plan of an apartment with self-adhesive dots to mark locations where the proband loves or hates to make phone calls.</td>
<td>Locating calling places and simultaneous activities</td>
<td>verbal, behavioral narrative</td>
<td>Scenarios for interaction and services</td>
</tr>
</tbody>
</table>
Research Phase 3 - The Ideation Workshop: Within a one day workshop we encouraged the participants to build an ideal prototype of what their mobile phone should look like and should be able to do in the future. They were offered a wide range of different materials to work with. The participants were furthermore asked to create a collage, expressing their attitude towards their phone [Table 4].

Prototyping is a tool of participatory design and action research regarding users as co-designers and experts of everyday life. It aims at the production of data in the form of objects which informs in a multisensory way about the respective personality, preferences, visions and desires. This method addresses the imaginative and projective abilities of the test person which makes tacit knowledge visible.

### Table 4: Research tool, research purpose, qualitative design related outcome of research phase 3

<table>
<thead>
<tr>
<th>Research Task &amp; Tool</th>
<th>Research Purpose</th>
<th>Qualitative Dimension</th>
<th>Epistemological/ Design Contributions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prototyping</td>
<td>Materialization of a mobile communication device, personal visions, fantasy</td>
<td>Visual, symbolic, haptic, artefactic, narrative</td>
<td>Personal style, Product design preferences, Functional and behavioral preferences, desires concepts and ideas, accessories scenarios</td>
</tr>
<tr>
<td>Make a collage</td>
<td>Role of mobile communication within daily life, personal visions, fantasy</td>
<td>Visual, haptic, symbolic, narrative</td>
<td>personal profile, attitude towards mobile communication scenarios</td>
</tr>
</tbody>
</table>

In triangulating research findings from different research phases and methods, we also analyzed whether the results of a single proband were complementary or conflicting throughout the different phases.

We made the participants express their thoughts in multisensory ways which delivered several benchmarks for ideation than purely textual information. The probands expressed themselves verbally, visually, spatially via maps or in an artefactic way via a self designed prototypes, even olfactory via collected samples of flavour. This qualitatively manifold outcome symbolized demands, personal preferences, tacit desires and latent visions that inspired ideas and concepts for innovative applications.

Moreover, we offered different research environments – self-observation within daily life as well as laboratory situation during the ideation workshop – in order to estimate which answers and ideas might be individual and which ones are generated in contact with other persons. We consciously started with the self-observation phase in order to make each proband to concentrate on herself. We hypothesized that this might also reduce the influence of others during the workshop. This hypothesis was proved by the very individual prototypes that were produced during the workshop.

We evaluated our methodological approach with regard to our research requirements and results. Indeed, the approach diminished the stereotypical view in favor for individual findings. It also provided the design practice with a broad range of detailed inspirational data. The intensive involvement of female users made their daily life more conceivable and comprehensible that enhances the empathy for the target group – an effect which reduces stigmatizations.
4. Problem and Knowledge Gap

While the literature about participatory design approaches and Cultural Probes gives lessons and examples about preparation and application [11, 16 - 19], suggestions and examples about how to deal with the outcome systematically and efficiently are rare. Sanders et. al [19] present a card set to communicate participatory design results to a design team which contains a summary of the individual data of each proband illustrated with original quotes and sketches.

From our perspective, this tool is not powerful enough to compact individual findings with regard to the process of ideation – a requirement which becomes more important referring to our current research project ‘G – gendered inspired technology’ with 75 probands.

Looking for other tools for similar purpose, we come across the ‘Design Information Framework (DIF)’ developed by Lim and Sato [20, 21]. This tool seems to have the same intention than we do: It promises to be a solution for a sustainable storage and systematical arrangement of all design information which is generated within a project embracing the development of prototypes as well as their evaluation. It claims to be a kind of “shared language that enables designers effectively to organize, generate, evaluate and communicate their knowledge” [20] throughout multidisciplinary teams and different stakeholders. In contrast to that, our tool just embraces the first two design phases and focuses essentially on the communication between design researchers and design practitioners. In this respect, DIF is more complex integrating all phases of a design process from research to concept evaluation [20: Fig. 4].

Going into detail, DIF unfortunately does not show any approach or strategy for an efficient organization of qualitative and diverse research results with regard to ideation and concept development, nor does it offer advice to deal with the research data themselves. It seems to be more appropriate for dealing with insights deriving from a clear defined context like e.g. usability test that aims at optimizing an artefact, interface or system. Referring to our project ‘Women’s phone’, we face a completely different design task with a completely different research demand. Our research had to deliver an informational basis to create completely new design concepts instead of optimizing or evaluating existing ones. Consequently our research focus was much more open and broader than in case of research for design optimizations. In our project, the social life and everyday management of females
became main benchmarks and inspirational sources to explore useful as well as enjoyable mobile applications and services for future usage.

In contrast to DIF, we do not regard the research results from an explicitly user centered perspective separating them into informational and relational units like motives, goals, needs, behavior and contexts. Our findings are ‘human’ generated anyway. For this reason, we choose a different perspective, trying to regard the research results from a more operational than analytical point of view. We hope to accelerate the transfer from research results into the design practice by ordering them according to their quality with regard to affected ICT product components. Working with qualities and product components seems to us an efficient way to treat research insights from a design specific perspective with regard to the development of new ideas and design concepts.

5. Solution: Design Knowledge Management Model

In the following, we present our alternative approach, called ‘Design Knowledge Management Model’ [Fig. 5].

![Design Knowledge Management Model](image)

**Fig. 5:** Design Knowledge Management Model ([A]-[E]: Relations between research data and product components referring to the design concept example presented in Chapter 5.1)

It serves as a cognitive tool which helps to structure the qualitative complexity of the research data with regard to the process of ideation. For this purpose, we defined categories which clustered different qualities of research
data like sensory, rhetorical, transcendental, conceptual, personal dimensions in a systematical way. We introduce a matrix, which allocates these qualitative categories to ICT product and marketing components. This construction shall help designers to think about manifold relations between research findings and product aspects to generate ideas and to accelerate the transfer of research findings into product/business related formats. It shall also inspire discovering less obvious relations.

The qualitative categories are located on the left column. They can be expanded and modified depending on the particularity of the research results. They help to systematize the qualitative diversity. They can be used as a check list that supports different views on the research material.

Horizontally, we clustered diverse components of ICT products. Within this row we also considered marketing categories.

Basically, each categorized research finding can be related to each product/ marketing component. Some of the qualitative dimensions refer more obviously to certain product components than others, e.g. the sensory filters are apparently connected to the interface component which finally addresses the areas of industrial, product and visual design. But basically it depends on the interpretation of the designer which relations finally lead to certain idea for an interface or interaction design concept.

5.1 Example of Application: ‘Bracelet’ - a research based Design Concept

Referring to one of our developed design concepts, we exemplarily show how we deal with research findings with regard to the development of customer appropriate products and services. We present a concept called ‘Bracelet’ [Fig. 6] which is created in collaboration with IxDs, an interaction design agency in Berlin. Referring to this concept, we demonstrate how our ‘Design Knowledge Management Model’ [Fig. 5] helps to mediate between design ideas and research findings and makes their relationships systematically explicit and transparent.

The ‘Bracelet’ [Fig. 6] is a mobile accessory which makes one feel more connected to close friends and functions as an alert for special calls. By disconnecting it from the mobile phone, the mobile is automatically mute. It reminds of incoming calls by vibrating at the wrist. The bracelet can be decoratively and functionally personalized: In latter respect, the user can manage for whom he/ she want to be available and who he/ she want to communicate with by adding or deleting a contact physically.

The tables below give an overview of the research findings the ‘Bracelet Concept’ [Fig. 6] bases on. We reconstruct how this design concept is related to the qualitative dimension of research results and product
components within our ‘Design Knowledge Management Model’: The letters [A] to [E] located within the matrix [Fig. 5] refer to the respective research tool and findings listed in the tables below [Table 5; Table 6]. The research findings are clustered to central issues [[E] in Table 5; Table 6] which may mirror female demands and needs referring to mobile communication.

Table 5: Concept related research findings of research phase 2

<table>
<thead>
<tr>
<th>Research Tools &amp; Findings</th>
<th>[E] Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>[A] Photographic documentation</td>
<td>(Hand)-Bag</td>
</tr>
<tr>
<td>Bags of female probands</td>
<td></td>
</tr>
<tr>
<td>“When I’m in traffic and my phone is inside my bag, I often don’t hear my phone ring and sometimes miss important calls.”</td>
<td>Social Connectivity</td>
</tr>
<tr>
<td>“I often don’t hear my cell phone ring if it is inside the bag, or I hear it too late.”</td>
<td></td>
</tr>
<tr>
<td>“It’s tedious to search my contacts for the friends I often call. It would be nice to have an easy short-cut to them”</td>
<td>Context Sensitivity</td>
</tr>
<tr>
<td>“With my phone, my family and friends are always with me, it’s like they are inside of my phone and always in reach. That’s so reassuring.”</td>
<td></td>
</tr>
<tr>
<td>“I want to be sure that my phone is set to mute without having to double check.”</td>
<td>Security, Privacy, Control</td>
</tr>
<tr>
<td>“Sometimes I forget to put my phone on mute (which might lead to embarrassing situations).”</td>
<td></td>
</tr>
<tr>
<td>[B] Postcards</td>
<td></td>
</tr>
<tr>
<td>“When I’m by myself in public, I like to use my phone to show that I’m not really alone.”</td>
<td></td>
</tr>
<tr>
<td>Deciding about one’s availability becomes more and more important due to females’ double role as private and professional person: Availability shall be always guaranteed for close friends and family, but not always for colleagues. Calls from colleagues in the evenings and at the weekend are not always welcomed, but are answered because of one’s sense of duty. (finding from our current research project ‘G’)</td>
<td></td>
</tr>
<tr>
<td>Heavy phone activity is evaluated ambivalent: On the one hand it is described as vividness, on the other hand associated with – in most cases – job-related stress.</td>
<td></td>
</tr>
<tr>
<td>[C] Notebook</td>
<td>Transportation</td>
</tr>
<tr>
<td>“I miss an appropriate bag to take my mobile with me within the office. Female trousers and clothes often do not have appropriate pockets for this purpose.”</td>
<td></td>
</tr>
<tr>
<td>“I generally think, that technical devices (laptops, mobiles) and the pockets and bags for transportation do not really fit very well to a feminine outfit.”</td>
<td></td>
</tr>
<tr>
<td>“I don’t want to have a chain around my neck carrying my mobile – for me, this is too close to heart!”</td>
<td></td>
</tr>
</tbody>
</table>
6. Conclusion & Outlook

Looking at [Fig. 5], we discover a further benefit of our ‘Design Knowledge Management Matrix’: It makes visible which research tool provides information for which design task. In this sense, it may be a fruitful tool to evaluate research method with regard to their informational contribution to the design process. Furthermore, this approach also helps us to identify important issues that our female participants deal with within their daily life [(E) in Table 5, Table 6]. ‘Social Connectivity’, ‘Security/ Privacy/Control’ as well as ‘None Communication and Time-Out’ have become core issues within our ongoing research project, called ‘G - gender inspired technology’. We expanded our research focus considering the aspect of diversity. During this year, we will investigate the demands and desires of 75 female probands towards ICT who additionally differ in education, cultural background and life style. Consequently, the presented ‘Design Knowledge Management Model’ is still under empirical evaluation and modification reflecting our current epistemologies and research results.

7. References

[1] Oudshoorn, N., Rommes, E. and Stienstra, M., 2004, Configuring the user as everybody: Gender and Design Cultures in Information and Communication Technologies In: Science, Technology and Human Values 29 (1), P. 30-63


[8] Sanders, E.B.-N. and Chan, P.K., 2007, Emerging Trends changes over time in the landscape of design research, IASDR07, International Association of Societies of Design Research. The Hong Kong Polytechnic University, School of Design, 12th to 15th November, Hong Kong


[21] Lim, Y.-K. and Sato, K., 2006, Describing multiple aspects of use situation: applications of Design Information Framework (DIF) to scenario development, In: Design Studies Vol. 27 (1)