How can Feminism contribute to Design? A Framework for a feminist Design Research and Practice

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Abstract

In this paper, I present a framework for a feminist design research and practice. It aims to guide design decisions from information, ideation to evaluation from a feminist point of view. It tries to facilitate the selection of appropriate approaches and methods in each phase with regard to feminist demands and requirements to support a feminist design on a methodological, practical and evaluative level.

The framework integrates different gender theories whose perspectives correspond to main phases and focuses that can be regarded as mandatory for human centered design. The framework integrates the feminist standpoint theory, the theory of gender performativity and the concept of 'doing gender' expanded by the actor network theory.

The feminist standpoint theory guides the designers' attention to marginalized target groups and experiences within the phase of information and ideation. Feminist poststructuralist theories like the theory of performativity focus on the cultural construction of gender in media and artifacts. Consequently, they have a natural link to the design domain and can guide designers' decisions during the phase of inspiration and ideation. Design in this phase is challenged to invent new forms of gender representations and experiences to contribute to a socially fair and plural society. If a design concept or artifact meets feminist demands and requirements just becomes visible in interaction and use. The concept of 'doing gender' in combination with actor network theory focus on socio-material interactions and promise to provide benchmarks for a feminist design evaluation.

The application and empirical benefit of the framework is illustrated by a brief case study. The example shows how feminist perspectives can enhance the selection of methods, the critical reflection of designers' gender assumptions and the evaluation of design results with regards to their failure or success in terms of changing gender roles and behavior to meet social equality.

Keywords: feminism, gender studies, feminist design research, feminist design, participatory design, human centered design

Introduction

Today, technology has left the professional arena and penetrates our everyday lives and culture. As a consequence, it determines more than ever the ways we think, we act and finally the ways we are. This development introduces the 'third wave in HCI' that is also denoted as 'cultural turn' (Bardzell, 2010:1304; Bødker, 2006; Maass, Rommes, Schirmer, Zorn, 2007:15). This development has led to new design spaces which puts non-rationale as well as feminist issues on the design agenda (Bardzell, 2010; Bødker, 2006; Harrison, Tartar, Sengers, 2007) and makes technological development and design more human-centered than before, e.g. domestic technology deals with gender norms, gendered division of labor and space, ubiquitous computing addresses questions about space and (dis-)embodiment, affective computing, intimate interaction or experience design deal with issues of identity, gender performances, privacy, intimacy, generally with human relationships and emotions (Bardzell, 2010).

Feminism is a certain mindset that provides values and perspectives which become therefore more and more relevant for design of information and communication technology (ICT). It has also established alternative ways of doing science and research and contributed to a pluralization of methods and knowledges. Moreover, it appreciates values like subjectivity, partiality, perspectivity, situatedness, contextuality (Ernst, 1999; Haraway,1988) which matches with basic considerations and aspects of design. For this reason, feminism supposes to provide fruitful perspectives, concepts and approaches for a contemporary design research and practice, but unfortunately they are still not systematically considered or integrated within the process of information, ideation and evaluation. Currently, gender is either considered in a stereotypical way or completely ignored which supposedly does not lead to neutral or genderless results, but probably in a continuing confirmation of the male norm.

I develop a framework which aims at guiding design decisions during the phase of information, ideation and evaluation from a feminist point of view. This framework is the core element of my PhD thesis which is still under theoretical as well as empirical refinement. In this paper, I present its current state of development. It bases on feminist theories or – better - gender concepts which are partly applied in the field of Human Computer Interaction (HCI) like the feminist standpoint theory or feminist deconstructivist concepts. The framework aims at a systematic integration of feminist perspectives and approaches into design on a methodological, practical as well as evaluative level.

First, I summarize the basic feminist research requirements and show its impact on different design fields. Then I describe the current state of my feminist framework and its theoretical references and finally illustrate which impact it has on design research, practice and evaluation by using one of our design research projects as case study. This brief analysis show how interpretations, methodological and practical decisions we made in our project might have been improved by following the framework's critical views and recommendations.

Feminism and its Consequences for Science, Research and Design

Feminist Aims and Requirements

When we refer to feminism, then we address a certain mindset which influence the way we do science, research and design.

Feminism is a certain epistemology which generally criticizes power structures that functionalizes human properties for the justification of socio-material differences. In this respect, it explicitly focuses on socio-material inequity caused by gender or gender-related aspects (Ernst, 1999; Olesen, 2005:237-240). Gender is not the only criteria which is used to produce socio-material hierarchies, but in Western Societies it belongs to the most essential and powerful aspect of social, political and economical differences and power segregation.

On a political level, feminism aims at the abolishment of gender differences, social inequity, power hierarchies and oppression and strives for social change in favor for a democratic, gender equal, socially fair and plural society (Ernst,1999:32).

On a scientific level, feminism tries to initiate social change by changing cultural meanings. It strives for producing new knowledge and new forms of representations which also require the development of new methods and techniques for gathering insights, for their analysis and documentation (Olesen, 2005:252 - 256). The aim is to show that knowledge is partial, historically and socially situated, culturally constructed and therefore changeable (Ernst, 1999; Haraway, 1988). Consequently, objectivity does not exist from a feminist point of view, because every knowledge is liable to certain interests and power structures.

There are essentially two ways, feminists try to initiate social change: They focus on social groups which are at the edge of society in order to produce new knowledges based on their perspectives, attitudes and experiences (Haraway, 1988:584). Looking from the edge, respectively marginalized point of views show that knowledge is contingent which means it is related to one's social position in society which offers or restricts certain resources and options for participation. Another way to initiate social change is to modify or invent new categories of cultural meanings. For this reason, feminists aim at inventing and establishing new forms of gender representations. Consequently, they are naturally linked to the design domain.

Designers in the service of feminism are challenged to produce material as well as digital interfaces which provide alternative gender representations, experiences and behavior on the level of everyday culture. The interfaces can be regarded as materializations or visualizations of the designers' more or less consciousness assumptions about usage scenarios, usage contexts and user groups. In the latter respect, they address the aspect of gender whose representation and mediation have crucial effects on ordinary images as well as behavioral patterns that might be associated with masculinity or femininity.

Although feminist theories and approaches differ in their focuses and ontological concepts of gender, they have some goals and requirements in common. I summarize the ones which I regard as mandatory for doing research and design in a feminist (Ernst 1999, 2002; Haraway, 1988; Olesen 2005; Weber 2007) and human centered way (Krippendorff, 2007; Björgvinsson, Ehn, Hillgren, 2010):

- Focus on marginalized and disadvantaged groups of society.

- Foreground the voices of them.

- Make power structures visible among the participants, side with the disadvantaged among them.

- Establish an emancipated relationship between all participants.

- Integrate the researched in the whole process of research (from research to analysis to documentation) and design (from information to ideation to evaluation)

- Question your own assumptions and prejudices, avoid stereotypical perspectives and presentations.

- Change the situation/ position of the researched by offering them critical ways of thinking, new ways of expression as well as new opportunities of action.

- Support social justice, social integration and democratization by enhancing their acceptance, social integration, participation and their options for actions.

In summary, feminist research and design leads to participatory approaches which start from human experiences as informational and inspirational basis in the service of a democratic, social fair and plural society which can be regarded as the overall goal feminist researchers and designers want to contribute to.

Referring to Cockton's (2011) categories of design choices and situations, feminist design research and practice is human-centered or belongs to what Cockton calls 'Design for human outcome' (Cockton, 2011:87). This design model is different from applied arts and engineering because of its particular considerations of the beneficiaries. Feminist design research and practice is also different from user- or customer-oriented models rooted in innovation research and management science, although they have similar names like e.g. 'user-driven innovation'. They promote a democracy in terms of market competition and economic revenue as well as innovation in terms of marketable and economically successful products (Björgvinsson et. al., 2010:42) which do not meet feminist values and goals.

From this point of view, we can see that the feminist mindset also guides the selection of design approaches and methods which have to be compatible with or at least tailorable to feminist values and goals.

Feminist Perspectives in current Contexts of Design Research & Practice

There are a number of examples from different design fields (e.g. technology or interaction design: Trauth, 2006; Bardzell, 2010; Cassell, 2002; Maass et al. 2007; Oudshoorn, Rommes, Stienstra, 2004; Rommes 2000; product design: Brandes, 2001; Brandes, Stich, 2004; Ehrnberger, 2007; Kirkham 1996) where the gender dimension is considered or reflected from a certain feminist point. In the field of HCI e.g., socio-cultural or feminist researchers and developers are either inspired by phenomenology (Suchman 1987; Suchman, Jordan, 1989), feminist standpoint theory (Bardzell, 2010) or theories of deconstructivist feminism (Cassell 2002; Haraway 1988; Maass et. al. 2007; Weber, Bath 2007).

Nevertheless, gender does not belong to the mandatory focus or repertoire of designers. In design practice gender is either addressed in a stereotypical way or completely ignored. Technical devices for female customers are e.g. disguised as jewellery or designed in accordance to the scheme of childlike characteristics which make the devices look 'cute'. In books about interface design (Apple Computer, Inc. 1992; McKey, 1999; Shneiderman, Plaisant, 2009), usability (Krug, 2006; Nielsen, Loranger, 2006) or interaction design (Cooper, Reimann, 2003; Preece, Rogers, Sharp, 2002) the user is still genderless which does not necessarily lead to neutral or genderless results. These phenomena certainly maintain traditional power structures, gender images and the male norm.

For these reasons, a design model is missing which systematically integrates feminist perspectives, theories and approaches into each phase of the process from design research to practice to evaluation.

Framework for a feminist Design Research & Practice

Research Questions

My theoretical framework tries to give answers to the following questions:

- How can feminist perspectives and approaches be systematically integrated in design research and practice?

- How can they guide design decisions in the phase of information, ideation and evaluation from a feminist point of view?

- Which existing design approaches correspond to feminist requirements and therefore can be tailored to or specified for a feminist design research and practice?

- What makes the result a feminist artifact?

Construction and theoretical Basis of the Framework

The following framework aims to guide designers' decisions during the whole research and design process from an explicitly feminist point of view.

The tables below show its current state of development and construction. Table 1 displays the identified design phases and focuses I define as mandatory within a human centered design model according to Cockton (2011:87) In this respect, designers start from everyday experiences and demands of people as a source of information and inspiration for their artifacts whose effects can be observed and evaluated in interactions. These phase and focuses I defined in table 1 match with the ones of the feminist theories I briefly describe in table 2. These theories provide the basis for my framework. Table 3 illustrates the consequences each gender perspective has on design research and practice. It is the core element of the framework because here design research, practice and evaluation are specified in a feminist way. Table 4 shows exemplarily which design approaches are compatible with the respective feminist stance while each feminist perspective promotes different design results. Some examples of possible results are listed in the last row of table 4.

Design Phases and Focuses of Human Centered Design			
Phase	Information & Inspiration (Design Research)	Inspiration & Ideation (Design Practice)	Evaluation & Information (Design Evaluation, Research through Design)
Focus	Humans & Experiences	Artifacts & Media	Socio-material Interactions

Table 1

Corresponding Feminist Theories or Gender Models			
Feminist or Gender Theory [Schools of Thought]	Feminist Standpoint Theory [Marxism, Materialism]	Theory of Gender Performativity [Postmodernism, Deconstructivism]	Doing Gender/ Undoing Gender [Ethnomethodology, Interactionism] + Actor Network Theory
Focus	Experiences, everyday lives, life worlds of marginalized groups e.g. women et. al.	Artifacts and media representations referring to gender	Social Interaction, interaction between human and non-human actors (with regard to gender)

Aim	Social change by new knowledges from marginalized perspectives, experiences	Social change by new forms of (gender) representations and categories of meanings	Social change by new forms of identificatory displays (outer appearance), gender displays (behaviors and actions) in socio-material interactions
Conception of Gender/ Gender Ontology	Gender as a condition and result of socio-material experiences. Gender influences one's position within the societal hierarchy that determines/ influences one's socio-material circumstances and experiences.	Gender as cultural performance. Gender is a cultural construction which is determined by its cultural representations in form of artifacts and media.	Gender as ‚doing gender' (or ‚undoing gender') Gender results from interactions according to cultural gender norms which pretend that the way one dress, behave and act results from one's womanly or manly nature.
General Thesis	The socio-material being determines one's self-consciousness.	Identity is an illusion. The subject is fragmented because of her/his cultural externalizations and representations that constitute the subject.	Being results from interactions with one's socio-material environment based on cultural norms that guide one's own expectations and the anticipated expectations of the counterparts.

Table 2

Consequences for a Feminist Design Research and Practice			
Feminist Design Approach	*Feminist Standpoint Design*	*Feminist deconstructivist Design*	*Feminist interactionist Design*
Focus	Marginalized Humans & Experiences	Artifacts, Objects, Media	Socio-material Interactions
Addressed Design Phases	Information + Inspiration (Design Research)	Inspiration & Ideation (Design Practice)	Evaluation & Information (Design Evaluation, Research through Design)
	Design for use before use @ project time		Design after design @ use time
Design in the Service of …	Social justice, participation, democracy, empowerment, self-responsibility	Critical reflection, provocation, irritation, deconstruction, transformation	
Design Task/ Aims	Enhancement of democratic participation and life conditions, initiation of passionate controversies, offer of new perspectives and courses of actions,	Break with conventions and beliefs, invention of new realities and meanings, offer of new experiences, initiation of controversies	*>Feminist evaluation according to the tasks, aims and properties defined in the left and middle column<*
Design Properties, Effects	empowering, pluralist, diverse, controversial	deconstructive, non-conformist, critical, provocative, controversial	
Design Trigger	human driven	design driven	human design driven

Table 3

Examples of corresponding Design Approaches and possible Design Results			
Correspon-ding Design Approaches (Examples)	Participatory Design Human Centered Design Pluralist Design Experience Design Underdetermined Design	Critical Design Design noir	>(Controversial) interactions between human and non-human actors can take place during the design process and/or afterwards in the way described in the left and middle column<
Results (Examples)	'Design 2.0', Open source movement, Do-it-Yourself, non-intentional design	Provotypes, questions, possibilities	

Table 4

Feminist Standpoint Theory

The feminist standpoint theory (Ernst, 1999: 17; Haraway, 1988:578; Harding, 1993, 2003; Olesen 2005:243-246) focuses on experiences and everyday lives of marginalized groups., therefore it can particularly guide designers' attention and decisions within the phase of design research to gather information and inspiration (table 3, left column).

This theory is inspired by Marxism which follows the main thesis that being – determined by one's socio-material resources, respectively restrictions - determines one's self-consciousness. From this point of view, gender is a condition as well as a result of one's social-material experiences. That means gender decides next to other factors like education, ethnicity, age etc. about one's position within a societal hierarchy. One's societal position determines one's socio-material resources or deprivations which then determine one's socio-material experiences in return.

In the context of design, the feminist standpoint theory guides researchers' and designers' attention to social groups with are conventionally not in focus like e.g. women, ethnic groups, handicapped people, seniors etc. Their perspectives, experiences and demands certainly inspire new concepts and design solutions which generally increase social diversity. "Feminist standpoint theory's privileging of alternative epistemologies simultaneously introduces a new domain of user research - the "marginal" user, which forces us to think through what that would mean - and implies a new set of strategies and methods for user research." (Bardzell, 2010:1302).

Consequently design approaches like e.g. participatory design (Björgvinsson et.al., 2010; Ehn 2008; Sanders, 1999-2008; Sanders, Stappers 2008) or pluralist design (Bardzell 2010: 1306) are compatible with a feminist standpoint perspective as far as designers put marginalized groups into the centre of attention, cooperate with them on an emancipated basis and finally avoid the recreation of cultural stereotypes (table 4, left column).

Poststructuralist or Deconstructivist Feminism

Inspired by cultural studies poststructuralist, postmodern or deconstructivist feminist theories (Ernst, 1999; Haraway, 1988; Schößler, 2008: 85-104; Olesen, 2005:246- 250) focus on the cultural construction of gender in media and artifacts like e.g. scientific texts, literature, art, movie, design etc. In this respect, they are closely linked to the design domain.

Poststructuralist feminists claim that there is no causal relationship between gender and sex, because gender is not determined by nature, but by cultural norms and representations which are potentially changeable. Gender just pretends to have a 'substance' because of the repetition of gender norms which guide people's body language, the way they behave, act and dress. Judith Butler is one of the most popular

representatives of this feminist school of thought. She created a theory of gender performativity (Butler 1990; Schößler, 2008:95-104) which base on the following assumptions (Bulter 1990:8-9):

> *"(...)gender is neither the causal result of sex nor as seemingly fixed as sex. The unity of the subject is thus already potentially contested by the distinction that permits of gender as a multiple interpretation of sex. If gender is the cultural meanings that the sexed body assumes, then a gender cannot be said to follow from a sex in any one way. (...)When the constructed status of gender is theorized as radically independent of sex, gender itself becomes a free-floating artifice, with the consequence that man and masculine might just as easily signify a female body as a male one, and woman and feminine as a male body as easily as a female one."*

Poststructuralist feminists aim at overcoming traditional power structures and supporting a pluralistic society by inventing and establishing new categories of meaning and ways of representation besides gender stereotypes. Design in the service of deconstructivist feminism is especially challenged in the phase of ideation to provide concepts and artifacts for new gender experiences to contribute to gender and social diversity. Following Butlers request for gender confusion, design in this feminist tradition is obviously related to critical design or design noir (Dunne 2000; Dunne, Raby, 2001). It may produce 'provotypes' (Mogensen, 1991) which provide irritations and poses question about the nature of gender. In this respect, design would fulfill what Krippendorff (2007:74) has defined as main design task:

> *"In effect, designers need to question the prevailing ontological beliefs. Being afraid of undermining common convictions makes for timid designs. (...) Proposing what everyone knows or already uses is not design at all."*

The current visualization of my framework (table 3) recommends using the feminist standpoint theory in combination with the feminist deconstructivist perspective. Alternatively, they can be used as stand-alone approaches which lead to different design approaches and results (table 4).

Feminist standpoint design is principally an open form of design that takes advantage of the natural diversity of human beings. In this context, the designer is just a facilitator for social participation and controversies. They can be initiated during the phase of research using a participatory design approach and/or by the designed artifact that provides spaces, possibilities or tools for co-creation. Examples for feminist standpoint design may be social software applications, the open source movement or the Do-it-Yourself movement which require people's contributions, exchanges and active participation to survive.

In contrast to that, feminist deconstructivist design is more instructive or message-oriented. In this context, designers want to draw attention to something. Consequently, they have to implement a certain message into an artifact that pose critical questions or make certain cultural phenomenon visible which are hopefully understood or discovered by the users.

Consequently, the framework urges the designers to think and consciously decide about their role within the process of design. It also reveals a general dilemma of a feminist design research and practice which is mentioned by Sengers et. al (2005:50-51) with regard to the development of their concept of reflective design: On the one hand it requires the involvement of the researched during the whole process, on the other hand it maybe sometimes necessary or more effective to actively promote feminist goals and

values through design in order to avoid the reproduction of the status quo and to accelerate social transformation.

Ethnomethodology and Interactionism

Which effect a certain design concept or artifact has and if this effect meets feminist requirements and goals finally becomes visible in interaction or in use. For this reason I refer to the concept of 'doing gender' and the actor network theory which promise to provide suitable benchmarks for evaluating design from a feminist point of view (table 3). The concept of 'doing gender' (Kessler, McKena, 1985; West, Zimmerman, 1991) which originate from ethnomethodology and interactionism (Garfinkel, 1967; Goffman, 2001) focuses on how gender is constructed within social interaction. Objects are also mentioned as components of social interactions, but not explicitly examined. For this reason, there may be a need to expand it by aspects of the actor network theory which focuses on interactions between humans and non-humans which I have not theoretically explored yet. Consequently, the third column is actually the weakest and less theoretically underpinned area in my framework.

The ethnomethodological concept is very similar to the deconstructivist gender model. Both base on the same ontology that regards gender as a cultural performance or 'a socially scripted dramatization of the culture's idealization of feminine and masculine natures' (West, Zimmerman, 1991:17). They also have an overlap in focus regarding gender representations like body language, behavior and style that are also crucial reference points in social interactions. In this respect, West and Zimmerman differentiate between 'identificatory displays' referring to aspects of the outer appearance and 'gender displays' referring to norms of gendered behavior and actions (West, Zimmerman, 1991:19). But there are differences in the concepts with regard to the changeability of gender: While Butler (1990:9) regards gender as a 'free floating artifice' which can culturally performed, West and Zimmerman (1991:23-24) claim "if the sex category is omnirelevant' (…) gender is unavoidable". This thesis is contrasted by the concept of 'undoing gender' (Hirschauer, 2001) which has the same theoretical origin.

Regardless of these similarities and differences, the interactionist perspective may not provide another feminist point of view but it provides control, if the requirements and goals of the preliminary perspectives are achieved.

For this reason, I'm convinced that theories which focus on gender from the perspective of socio-material interactions complete the framework. They promise to link 'design for use before use' with 'design after design at use time' (Ehn, 2008: 93-95) that maybe anticipated due to user tests or better becomes accessible in field observations of real world environments (table 3). The evaluation standards are provided by the feminist perspectives of the standpoint theory and the theory of gender performativity and can be controlled within the third column which represents the area where research through design (Findeli, 2008, 2010; Stappers, 2009) takes place. There the artifact plays a double role: As object or product for use and as 'epistemological carrier' that provides new knowledges about its appropriateness for its purposes of use as well as about its feminist appropriateness which is not necessarily the same. What works well from a user's perspective may not satisfy feminist demands as exemplified in the following case study.

Application of the Framework and Conclusion

In the following, I exemplarly apply the framework to one of our design research projects in order to test its potential to systematically guide design decisions in a feminist way. This retrospective analysis provides interesting insights which show that the framework

can indeed enhance the feminist quality in the phase of information, ideation and evaluation.

Case Study: Female Inspired ICT Services

In 2009 we initiates a participatory design research project which aims at the development of new applications and services of information and communication technology (ICT) that explicitly considered women's demands and desires (Buchmüller, Joost, Bessing, Stein, 2011). For this purpose, we invited 55 women and 18 men which differed in age, education, cultural background and life style (living as a single, in a relationship or in a family). The women were clustered into age groups according to certain life phases, while the male group was a cross-generational group that served as a kind reference group to explore the origins of differences or similarities which might result from gender or from other mentioned factors.

Every group passed through the same research process which consisted of a two-weeks self-observation phase based on cultural probes and a two-days ideation workshop. The core task within the workshop was that each participant created a prototype which materialized her/ his vision of future communication. We additionally used a mixture of social scientific methods like focus group discussions and role play to get in close dialogue with the groups as well as questionnaires to ask about the participants' communication habits and technical equipment. That way, we got a lot of detailed and personal insights about the role of ICT in their lives, their likes, dislikes and emotions towards ICT as well as their desires and future visions. We actively involved the participants into the research phase, but did not integrate them during analysis and ideation as required by feminist research.

Feminist Analysis and Conclusion

In accordance to a feminist standpoint perspective, we put a marginalized group in the center of attention: Women's experiences are still neglected in the male dominated technological research and development (BMBF 2010:400,401; European Commission 2006). We also considered the aspect of diversity within the sample and within the mixture of methods we used. Moreover, we decided for a participatory design approach in order to cooperate with our participants on an emancipated basis which also fulfils a basic feminist research requirement.

But in this respect, the feminist standpoint perspective would have enhanced our methodological selection. While we followed the participatory design approach developed by Liz Sanders (Sanders, 1999-2008; Sanders, Stappers, 2008), we should have preferred Pelle Ehn's approach. He regards participatory design not as an approach to enhance communication between different stakeholders to provide empathy as a basis for satisfying user needs by appropriate and marketable products. Ehn and his research group regard participatory design as a political intervention in the service of social change towards democracy and empowerment of marginalized groups (Björgvinsson e. al., 2010; Ehn, 2008). Consequently, their version of participatory design is completely compatible with feminist requirements and goals. Using this approach might have even led to different design concepts and solutions.

In retrospection, some of our design results seem to be too conformist. One example: We developed an ICT service called 'Family Wheel'. This service was developed based on insights we gathered from our female participants in the so called rush-hour of life (women between 29 - 45 years old). As we know from research, they had to deal with a lot of organizational duties that especially increased when little children or parents in need for care were involved. Even if partners were more involved in household chores,

supportive grandparents, friends or neighbors were around, it was mostly the mothers who organized the family and household duties next to their own affaires. On the one hand they appreciated ICT for being always available, especially in case of unforeseen events and the need for spontaneous organization concerning family and friends. On the other hand they complained that there was still a lack of suitable ICT services to provide organizational relief or to make organizational distribution more efficient. However, no one of our female participants complained explicitly about a gender unfair distribution of private or family duties.

The 'Family Wheel' is a tool for distributing spontaneous daily tasks among a local group of people. It aims at providing organizational relief, strengthening local bonds and supporting a better distribution of tasks among the members of one's social network. Within our user tests, the female as well as male test persons appreciated the service very much. Unfortunately, we overlooked some essential phenomena: The mothers within the test group tended to use it as a 'mothers' wheel':

> *''Such a service would be so helpful for exactly the typical Kindergarten pick up situation (...). Many women I know are both mothers and freelancers, they would surely find this very useful.'' (Female, 32 years). ''A friend of mine's always been the social center, organizing everything, even before she became a mother. I'm not a 'center' myself but I'm part of her planning, so I often get calls if I can babysit or act as key service. Therefore I'd find it practical to log in or out of her family Wheel when I'm available.'' (Female, 29 years.).*

Other female test users regarded the service as a welcomed tool to ask for help or reject their help in an nonpersonal way which seemed to be a problem in direct or personal communication – an issues that was not mentioned by any of our male participants.

> *''I'm rather a part of other mothers' wheels. I often get called to take care of their children, which I don't mind doing. However, sometimes would be nice to 'deactivate' myself from their reach.'' (Female, 36 years).*

The Family Wheel may facilitate women's daily organization but unfortunately not in a feminist sense. It seems to provide a substitute for a fair division of labor between parents and a solution for women's fear to articulate their demands which maintain traditional gender roles and female behavioral patterns. Referring to family issues from a feminist standpoint perspective, we would have also drawn attention to fathers as a marginalized group with the aim to make them participate more actively in family duties. From a deconstructivist point of view, it was essentialist and conservative to assume that our female participants doubtlessly felt like women, our male participants doubtlessly felt like man and that couples or parents 'naturally' consisted of opposite heterosexual subjects – gender images we did not question during our research and design process. These pitfalls might have been more easily discovered or even avoided by referring to the feminist perspectives and goals provided by the framework.

This short analysis shows that the framework could have enhanced the feminist quality of our research approach, the evaluation and refinement our design concepts which should become more 'critical' or 'noir' as recommended from a feminist deconstructivist point of view.

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