Design driven Diversity – Diversity driven Design

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Abstract: A strong characteristic of humans – their diversity – is also reflected in man-made artifacts. As such, a large potential is opened up to bring together people from a variety of contexts (whether those be cultural, social or demographic) into the processes of technological and/or social innovation.

In this paper, we do not regard diversity as a given human specific, but rather as the humans' ability to creatively adapt to *new* or unfamiliar situations by developing innovative cognitive and bodily behaviors. This also encompasses innovative ways of people to appropriating technology.

We will present three exemplary research areas, where questions concerning social inequality are addressed with regards to gender, age and disability. The research areas provide the backdrop against which we develop a *situation analysis* to clarify which role design and design research can play in the structuring of society.

In this context, various doubts might arise with such a strong social focus – what are the limits of the social dimension of design? It is a further aim of this paper, to also discuss these doubts. The goal is to provide a pragmatic approach to diversity as a contribution for the design-/designresearch-discourse.

Key words: Ageing, Design Research, Disability, Diversity, Empowerment, Gender, Innovation, Interaction, Normality.

1. Diversity oriented Design

With the cultural construction of normality (Link 1997) in mind, we have criticized in previous research the position that proposes designed artifacts oriented towards the majority as the guiding principle in common design approaches (Bieling/Gollner/Joost 2012; Bieling/Joost/Sametinger 2013). In turn, the aim of this research is to acknowledge a strong characteristic of humans – their diversity, thus to discuss the value of including the "non-majority" in the design and design research-process. We shall now pick up on these aspects against the background of a multiperspective role-understanding of design, switching between so-called majorities and minorities. Two presumptions shall differentiate this initial position: First, a howsoever defined majority needs minorities, in order to define itself (Staupe/Zirden 2001, 164). Second, Bertrand Russel's statement that social progress is only possible through minorities, since majorities perpetuate the status quo. Thus design as a discipline aiming for innovation has a primary interest in enabling and strengthening minority influence.[1]

1 In the context of social psychology, Sampson (1991) distinguishes between two types of social influence: majority influence (conformity) and minority influence (Innovation). According to Sampson, the former refers to the majority trying to produce conformity on the minority, while the latter is converting the majority to adapt the thinking of the minority group.

Both have to be brought in relation to the discourse on the social dimensions of design, which has increasingly gained importance in the recent years.[2] It seems to be a logical consequence that a social orientation in design is now gaining currency. A "social active design," as Alastair Fuad-Luke has called it, focuses on society and its transformations toward a more sustainable way of living, working and producing (Fuad-Luke 2009: 1978). Ezio Manzini describes the necessity for cultural change that can be propelled by a new awareness in society and by establishing new models of behavior (Manzini 1997: 43-51). Design can play an important role here in that its artifacts – in the form of products, services or interventions – can create awareness and can motivate alternative patterns of behavior. As such, design is required to reflect on the scope of its actions and on the responsibility of the designed artifact's possible effects. It is a question of the social responsibility of design and the potential to design social responsibility.

Design research (in both its theoretical and practical form of appearance) has offered various approaches to address this responsibility. For instance a more political oriented variant of participatory design can be found in Pelle Ehn (2001) and Ezio Manzini (2007). Here the focus is on the inclusion of citizens in societal processes as well as the authorization for independent improvements of living conditions. This variant is deeply rooted in the Scandinavian and American labor movements (Ehn, Kyng, 1987) and is based on the principle of including different groups in social and technological development processes. The goal of "Design Infrastructuring", a further development of the participatory design concept by Pelle Ehn, is to form longer-term, sustainable infrastructures to facilitate social innovation (Ehn, 2009). According to Wolfgang Zapf, social innovations are "new ways to achieve goals, especially new forms of organization, new regulations and new lifestyles, which change the direction of social transformation, are better at solving problems than earlier practices, and which are therefore worth imitating and institutionalizing" (Zapf, 1989). In particular social innovation affects "values of social progress, like social equality, equity and integration" (Rammert, 2010).

This can be better understood against the background of a crucial social challenge: namely, to deal with diversity in everyday life. A strong characteristic of humans is their diversity (Heidkamp, 2010, 8). This variety is also reflected in man-made artifacts and can, by implication, also be addressed by looking at the design of such artifacts. As such, a large potential is opened up by bringing together people from a variety of contexts (whether those be cultural, social or demographic) into the processes of technological and/or social innovation. Not least to clarify: the awareness that society is diverse can also be of aid in the design process in developing new and alternative ideas extending far beyond the stereotypical image of so-called standard users (Joost/Chow 2010). Such a standard or "normal" user is not existing and thus stands in contradistinction to the concept of diversity.

In this context, we should clearly keep in mind Lennard Davis' thoughts on diversity, who reminds us that we often tend to ignore inequality. He argues that the „rather limited underlying concept behind the idea of diversity is laid out in the philosophy: ‚We are all different—therefore we are all the same.' Davis criticized that, if „difference is being equated with sameness, then how can being different mean anything?" (Davis 2011)

Nevertheless diversity in everyday life also entails calling the existing constructs of normality into question: that is, which body is "normal," and which behavior is "socially acceptable?" The conception of "normal" is often

[2] The concept "social" is understood here in its general sense as concerning what is common and related to aspects of cohabitation.

reinforced by design, not only by means of the images produced by advertisements, but also due to the fact that the design itself excludes certain users from using specific services and technologies. Questions concerning social inequality can, for instance, be addressed with regards to gender, ageing and disabilities.

1.1 Design and Gender

Assuming that the cultural production of gender is an act of *creation* that isn't founded on pure biological predispositions, design and gender are closely related (see Brandes 2008, Kirkham 1996). The concept "gender" describes exactly this: our gender roles are negotiated on a daily basis and therein lies potential for design. Design then maintains an essential relationship to gender as the design of sexuality. Moreover, there are very practical references such as, for instance, the extent to which designed artifacts represent or distance themselves from clichéd representations of gender roles.

The critical analysis of the relationships between user and artifacts with regard to their genderization (Brandes 2008) can be seen as an inspiring and helpful starting point for the diversity debate in relation to its relevance for design. Moreover it spotlights aspects, like for instance the social and cultural construction of gender in relation to things and/or the use-of-things, that can be taken on in other contexts, like in the below-mentioned ageing- or disability-debate.

For design research, the question arises how to overcome the established stereotypes of "man" and "woman" in order to attract qualified concepts in practice. It becomes clear that concentrating on gender issues requires repeatedly reflecting upon how much standard roles are thereby implicitly strengthened. When, for instance, service ideas relying on everyday needs are developed, it doesn't necessarily mean that they contribute to emancipated gender roles or that they lead to a balanced division of duties between genders per se. (Joost/Bessing/Buchmüller 2010)

In the context of 'user participation' this can be a trouble spot, since it makes the limits of participation clear and also brings the responsibility for the product back to the designers. Dealing with the results of participatory design processes therefore requires great sensitivity and reflection as to what can be produced from the products or services originating in this manner.

The question whether design contributes to maintaining gender constructions that adhere to the two-gender paradigm, or whether it serves to balance or marginalize them (Brandes 2008, 199) illustrates an omnipresent conflict for design: the challenge to either explicitly address a certain (assumed) target group (e.g. gender-sensitive or gender-specific design), or to rather "ignore" it. A further dimension can be seen in the design potential to deconstruct existing gender role models, and in the challenge to transcend them.

1.2 Design and Ageing

Is it adequate to regard the requirements of old people in design as a minority issue? The homogeneity the term ageing suggests is of course misleading. Ageing is a process that gradually evolves and that continuously produces functional loss: until people are reaching very old age, they are often experiencing a loss of bodily and cognitive abilities. In this scope ageing is an irreversible and multifaceted process that evolves in characteristic progressions and creates a need for specific solutions. Although this approach is still popular in the field of human

factors, reducing ageing merely to a treatable disease leaves out the societal frames for experiencing age as well as the individual preconditions that influence the experience of getting older.

A societal approach to ageing is provided by segmentations that divide groups by age. Historic illustrations that became popular in the 18th century, present a concept of »stages of life« that show how people at that time were defined by age in terms of everyday culture, gender specifics, wardrobe or symbolic objects (Fig. 1). Today an idea of fixed life-styles and a homogeneous progression of different life stages is no longer effective. Not only since the »baby boomers« have entered retirement age, life concepts in later life have extensively diversified. Demographer Bill Laslett therefore suggested a concept of that is in contrast to stage models by defining different life phases. Following an aspirational approach, the date of entry into pension becomes one important determining factor when people enter the »third phase of life« (Laslett, 1991).

Figure. 1 Stages of Life: Illustration[3]

Population statistics reveal that the retirement community today represents a growing societal force that might constitute as the new mainstream. Jeffrey Inaba attested that old people are no longer "a passive segment of society that lacks agency" and investigated how their interests are influencing public interests and political decisions (Inaba, 2011). In consequence, demographic models and statistics not only served for a better understanding of the expanded spectrum of age groups due to longevity and population growth, but they are also actively shaping social life: e.g. by facilitating new forms of social settings and new forms of co-habitation.

Deane Simpson showed how large retirement communities like »leisure ville« or »The Villages« in Florida promise to provide optimal conditions to serve old peoples´ needs due to e.g. healthcare-, security-, entertainment requirements (Simpson, 2012). Large scale environments facilitated by architecture and design he calls »Gerontopias«. In these »worlds without children« (Blechman, 2009), housing, access to leisure activities, community infrastructures and healthcare support is provided at best to meet the needs of people that fit in the target profile. This exemplifies how design driven approaches to serve a specific group can result in new voluntary forms of segregation that contradict a concept of diversity that is aiming for a socially integrated society.

[3] http://www.mpg.de/bilderBerichteDokumente/dokumentation/jahrbuch/2009/europ_rechtsgeschichte/forschungsSchwerpunkt/pdf.pdf

When addressing a group of people by age this also confronts with questions about the implicit social and cultural constructions that are unwillingly reproduced hereby. This leads us to the individual influence on experiencing age, hence »doing age« (Schroeter 2008) shares many aspects of the process of »genderization« that we outlined in the last section: Ageing constitutes in daily practices and in domains that are widely influenced and shaped by the activities of designers as well as by using and appropriating designed products.

1.3 Design and Dis/Ability

Based on the assumption that there is a fundamental relationship between design and disability, two different phenomena — "to be handicapped" and "to be hampered"—seem to be inextricably woven together (Bieling 2010). In particular, the link between people, artifacts and their relationships to one another plays an important role (Latour 2001; Moser/Law 1999; Winance 2006). Thus, a wheelchair user becomes especially aware of his or her disability when confronted with stairs or sidewalks.

As with age and gender issues, we are also concerned in the context of disabilities with the cultural structures and constructions, which are reinforced by the design for reproduction and dominance (for example, through "perfect people" in advertising; through products that are meant to express exclusivity through the brand or price but which are then also exclusionary factors).

Lennard Davis states, that the "problem is not the person with disabilities; the problem is the way normalcy is constructed to create the 'problem' of the disabled person (Davis 1997, 9). This raises the question whether "disability" itself is the problem design should concentrate on or whether the focus should be on the culture dependant settings that produce such exclusions. In so doing, the following becomes clear: a purely traditional (problem oriented) concept of design, that is, a design that sees itself as providing solutions for a defined problem, is not applicable to disability. The designer is thereby confronted with a dilemma: design *for* disability always simultaneously designs disability. A further dilemma for design in search of "solutions" for the "problem" of disability is a catch-22: on the one hand it wants to help and on the other hand it has an inevitably normative effect on the manifestation of societal definitions and handling processes.

If one assumes that how technology is designed, plays a role for social and cultural inclusion and exclusion and for how social processes are constituted, it becomes clear to what extend the use and access to technology may influence the facilitation and initiation of any social encounter. One important consequence of this approach is that we do no longer emphasize the supposedly negative aspects (that is, the disability) but do instead recognize the real skills and expertise of the disabled from a perspective of design.

To understand disability as field of expertise is a special point of view that indirectly allows a fundamental reinterpretation of widely anchored social evaluations and understandings of disability and normality.

2. Design and Empowerment – Enabling Diversity

The last section showed how addressing target groups leads to binary thinking which is often insufficient to inform about the requirements for designing. Binary thinking means to contrast the attributes of one group against another in order to graduate and sharpen the requirements and provide a basis for design decisions. We want to argue that this approach is limited in that it leaves out the progression in which people define themselves in a

process of appropriation that results in a diversity of needs and requirements. Which movements within the field of design are currently offering an approach to diversity oriented design?

Universal design and *inclusive design / design for all* from the start contested a thinking in polarities and promoted an understanding that aligns design decisions with requirements that serve for *all* humans.

Universal design strongly highlighted the importance of standards, norms and the legal basis that is needed to reach this goal. Inclusive design in comparison more practically suggested design approaches that aim at including the diversity of users' needs that manifest in a "variation in capabilities, needs, and aspirations"[4].

An inherent conflict to these approaches is that any attempt to define most clearly in which way any special needs has to be respected, will also induce the reduction and uniformization of the possible variety in design – the underlying moral obligation left out. And *including* people also means to declare somebody being previously excluded – which again entails critical debates.

Practitioners showed in many ways how, despite these dilemmas, Universal Design and Inclusive Design can evoke a valuable design discourse that supports contributions to improve peoples lifes. Therefore here we want to suggest a shift within these concepts by addressing diversity not as a given human specifity or goal of design but rather as an attending outcome of the human activity to creatively adapt to *new* or unfamiliar situations by developing innovative behaviors and strategies. This also encompasses peoples´ creative ways to appropriating technologies. In consequence, the patterns of use and misuse that people develop in order to compensate their disabilities or to meet certain requirements will gain more attention than the focus on what an initial interest and aim was for using a product. If taken seriously here a new potential emerges: First, to reinterpret a one dimensional-user image, that we introduced as the »minority representative«. The user becomes an essential partner in innovation development by enabling new forms of use that are of a special value because of being in contrast to ordinary forms. This implies new forms of bodily appropriation, the challenging of gender stereotypes and the overcoming of generational specifics. Secondly, the ambition of a designer intending to design for a minority is shifted: It is no more focused on serving a special need but on extending the dimension of enabling divergent behaviors. In Table. 1 we summarize the possible consequences that such a diversity oriented approach can thus have on designers´ self-conceptions.

[4] According to the Inclusive Design Toolkit, developed at University of Cambrigde (UK), »Inclusive design emphasizes the contribution that understanding user diversity makes to informing these decisions. User diversity covers variation in capabilities, needs, and aspirations.« http://www.inclusivedesigntoolkit.com/betterdesign2/whatis/whatis.html

Table 1. Changing designers´ roles with a diversity oriented approach

Perspective	*minority focused*	*diversity oriented*
Disability	• designer acts on the assumption of a defined disability, that needs to be served • Designer reduces "user" to a certain role • disabilty (and the disabled user) as a problem, that needs to be fixed (»fixes abilities«)	• designer acts on the assumption of *different* abilities • supports *acquired* abilities • enables *new* abilities • adaptive to changing abilities
Gender	• serves and reproduces (gendered) stereotypes • builts on gender specific orientations • leads to gender friendly design	• extends the variety of attributions of gender • supports gender specific appropriations • provides design to *»engender gender«*
Age	• focused on global conceptions of age (e.g. demographics) • solves problems due to bodily and mental changes (e.g. human factors) • provides products and services to treat people (e.g. service robots) • addresses ageing roles (e.g. as grandparents)	• features modification of abilities due to changing needs and requirements • supports individual improvements due to changing abilities • strengthens competence for being treated by others • adapts to new emerging ageing life-modes

3. Conclusion

With our examples we tried to roll out, why Design for Diversity can be regarded as more than a philanthropic approach to serve for today's minorities – the gender debate shed light on the political dimension of this. Likewise we showed that diversity should not be reduced to the purpose of a technique *to distinguish* user groups and customer segments while aiming to reveal new markets – this understanding of diversity much too often represents itself in one dimensional reproduction of role models and stereotypes. By considering the ambiguity of ability and disability we moreover challenged the concept of normalization and standardization to serve for the idea of diversity. In contrast we featured the idea of the user as a specialist, empowered to achieve individual notions of diversity supported *by design in while referring to concepts like universal and inclusive design.* We

showed how this has consequences for the role understanding users that are often targeted as minority representatives as well as for the designers. Concluding, we want to make some indications to exemplify how Design for Diversity might have practical consequences for designers, users and for an understanding for the profession of design in general:

a. User: *From quantified to qualified selves.*

The quantified self movement is an expression for the increasing interest in monitoring tools to control individual data. Often this data is directly linked to the increase and loss of a person's ability. The use of these tools and services creates awareness for the consequences of all kinds of individual action. By comparing statistical data in a network, users become part of a reference group with global reach. To adopt to the groups´ mean values and norms.

An approach that contributes to the concept of diversity would instead support the emergence of *qualified selves*: represented in peoples abilities to enhance and develop the requirements for »good design« due to gender specifics, age related changes or changing bodily requirements.

b. Designer: *The designer as "social worker"*

By, for instance, not addressing certain user groups as 'old' or 'disabled' – meaning unable to use 'normal' technology, design appears to resemble political or social work: abstract concepts become understandable and effective through the joint process, not merely by an distinctly projected goal. The designer takes on the role of providing necessary resources for *others* to help themselves. This role is in contrast to the traditional concept of design, concerned with the innovative power of the individuals and their expression in the design.

c. Design Profession: *Diversity for social Innovation*

A diversity oriented approach to design allows, not least, to deal with a paradox, arising when designers aim to reveal users intentions before a product is used in real life: the intention to take the users needs into regard results in the inscription of familiar modes of use into new products to reduce the risks for failure and to proof the designers decisions.

This investigation highlights the importance of taking into account different perspectives – not least in design processes. Further work will be required to investigate wisely a methodological suitability. Although the discussed field takes place in the domain of gender-, ageing and disability-related topics, the overall scheme has implications for further related areas (e.g. of socio-economic or socio-cultural relevance), as well as for a general view on diversity-oriented design.

In the coming years it will be an important task to more firmly entrench such questions in the design discourse and to problematize them in design education. The critical reflection of one's responsibility as a designer should play a more integral role in education in order to develop more design concepts there from.

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