

Infrastructuring Diversity in Stereotypes

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Abstract. In this paper, we delve into the role of stereotypes in ICT design for and with older people. We ground our reflections on research experience regarding sociotechnical *infrastructuring* in the inclusive design field. After elaborating on the role of designer and user stereotypes in influencing the infrastructuring process, we suggest some research directions which might foster a deeper understanding of diversity and heterogeneity while *doing* sociotechnical infrastructures.

Age Stereotypes in ICT Design

Social cognition is the process by which we make sense of other people, and as such is a fundamental aspect of design. Social cognition unfolds in processes of categorization and stereotyping: the application of knowledge, expectations, and beliefs about other people based on social categories (Blaine, 2013, Schmidt and Boland, 1986). Stereotypes provide information about what people ought to be and how they should behave, thus facilitating efficient elaboration of rich and diverse stimuli. On the other hand, stereotypes often lead to prejudice and discrimination, and are based on easily discriminable information (age, gender, and race). In Western societies, the stereotype of older citizens includes positive (warm, trustworthy) and negative (incompetent, fragile) traits, although the latter dominate.

This position paper is meant to urge a critical reflection on the role of age stereotypes in sociotechnical *infrastructuring*, looking both at ICT designers who imagine users, and users who imagine themselves in relation to technology. On the designer side, a systematic analysis of the literature on personal and ubiquitous technologies (Cozza, De Angeli and Tonolli, 2015) demonstrated that many designers adopt *stereotypical understanding* of older users propagated by research and popular belief (Clarkson, Coleman, Keates and Lebbon, 2003). This simplification poses a serious risk, as it might lead to the ageism acceptance or reinforcement in design practices (Blaine, 2013). On the user side, (elder) users create stereotypical images of the target group they belong to, while dissociating themselves from that group (Neven, 2010).

In the next sections, we define the concept of sociotechnical infrastructuring and elaborate on the persistence of stereotypes in design processes and artefacts, drawing on our empirical data. While these data cannot be extensively analyzed in this context, we provide an insight into the relevant issues grounded in our research experience. Finally, we suggest some directions for future work.

Sociotechnical Infrastructuring

We apply the concept of infrastructuring as defined by Pipek and Wulf (2009), with reference to the Science and Technology Studies (Star and Ruhleder, 1994, Star and Bowker, 1999). This framework stresses the entanglement of social and technical dimensions and illustrates how several actors (e.g. designers and users) contribute to infrastructuring them. Thus, infrastructuring is an umbrella term referring to the integration of users/use time and designers/design time. In fact, according to Pipek and Wulf (2009), the methodological separation of design and use of technologies represents a core problem. They maintain that “the term design may even be misleading, as it focuses on an artifact that should be designed, and neglects the surroundings into which the artifact is placed, which remain in focus when we discuss infrastructures” (p. 452). Therefore, we adopt the definition of *design as a practice*, stressing that “design cannot be understood as a creation of abstract ideas but as a social practice which can have emergent

effects on the material world” (Rohde, Stevens, Brödner et al. 2009, p.3). Stereotypes pertain to these sociotechnical practices: they are rooted in the heterogeneous contexts which designers and users belong to, and they influence the entanglement of social and technical aspects throughout the infrastructuring.

Meta-analysis

Our reflection stems from the comparison of literature about inclusive design with our research activities focused on older people. As partners in heterogeneous networks (composed by business organizations, public institutions, researchers from different disciplines), we faced the dominant “medical model of assistive technology” (Clarkson, Coleman, Keates and Lebbon, 2003), according to which older people correspond to users who need to be technologically monitored or assisted. Our rich corpus of data (e.g. in-depth and contextual interviews, workshops, co-design sessions) led us to consider the role of designer stereotypes in sociotechnical infrastructuring and to investigate effective ways to tackle ageism. However, we noticed that even older people tend to reassert the traditional concept of “old”, and then create a contrasting image for themselves as active and successful ageing individuals (“we are still young, in comparison with older people ... no, the memory and everything go well... eee ... I mean, I did ... I did this [his participation to the project] because I have been involved ... eee ... then ... it is useful” - Ulisse, 74 years old). This attitude, apparently counter-intuitive, deserves attention because it refers to the integration of design and use.

Directions for Future Work

Our reasoning is based on the idea that stereotyping is an intrinsic element of the human adaptation to social environment. However, rather than being described as a natural cognitive process serving a good purpose, stereotyping tends to be negatively framed by the general media, naïve psychology and even science. As a matter of fact, there are positive and negative stereotypes. Our attention focuses

on the *pre-reflexive* nature of stereotypes: they are *naturally* and *automatically* applied by both designers and users. On the one hand, we highlight the need to elaborate on the risk ran by designers, as well as by other ICT practitioners, in an effort to convert stereotypes into oversimplified views of (older) users and context. On the other hand, we encourage a further investigation into older people's age stereotypes and how they influence their engagement in design practices. This understanding could foster a more reflexive re(design) of technology, while respecting the role of (older) users as co-designers and the role of designers as facilitators of sociotechnical infrastructuring (Sanders and Stappers, 2008).

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