

## Introduction to the Thematic Focus “Socio-Informatics”

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From ethnography to design and back - Ethnographic studies in industry unveiled that social practices could be in such sharp conflict with technology usage and vice versa that innovation could fail (Trist/ Bamforth 1951). When IT became a focus of researchers and developers, such insights motivated considerations about a possible role of ethnography for IT design. The early and outstanding work of Lucy Suchman (1986) and researchers associated with the Lancaster University (e.g. Hughes et al. 1992) has established a thorough discourse about this issue (Blomberg/ Karasti 2013) with a wide range of different facets, foci and research questions, both in Computer Supported Cooperative Work (CSCW) and Human-Computer-Interaction (HCI). Scope and depth of related methodological reflections differed from simplistic identifications of ethnography with requirements elicitation (see e.g. the related critique of Dourish 2006) to highly general disciplinary debates in sociology, psychology, and computing (Randall 2018, Randall et al. 2018). However, in between these extremes a space has emerged for empirically based reflections about the “socio-technical gap” (Ackerman 2000) and how it is (and could be) tackled.

Wulf et al. (2018) suggest “practice-based computing” as a framework for new design methods that focus on flexibility and the involvement of users. It should be mainly based on research into social and usage practices, into the lifecycle of design projects and products, the complex and long-term nature of technology appropriation and sustainability in (participative) IT design projects (Randall et al. 2018, Meurer et al. 2018).

As a contribution to practice-based computing, Socio-Informatics investigates into current shortcomings of conventional IT design approaches, and proposes alternative venues. While conventional criteria for good design in Computer Science are predominantly based on formal technology-immanent criteria, Socio-Informatics aims at the thorough investigation of the relationship between IT artefacts and the social context in which they are used. At the same time, it is interested in processes, in which IT systems and practices are mutually evolving, the social embedding of computer artefacts (Rohde/ Wulf 2011). It has developed, among others, different action-research approaches such as business ethnography (Stevens/ Nett 2009), integrated organizational and technological development (Rohde/ Wulf 1995) and, lately, design case studies (Wulf et al. 2015) and Grounded Design (Rohde et al. 2017).

Socio-Informatics places the anticipated users at the centre of research, their experiences, desires and needs (Kuuti & Bannon 2014, Wulf et al. 2015). This positioning requires a rethinking of the methodological approach in close analogy to the "practice turn" in various other disciplines (Reckwitz 2002; Kuutti and Bannon 2014; Wulf et al. 2011, 2015, Randall 2018). In this regard, practice-based computing and Socio-Informatics make two major points: a) qualitative/ethnographic methods may contribute to a holistic understanding of the anticipated field of application, and b) the need to understand existing practices and to provide a leverage effect upon their desired further development demands with applied research- and design methods (Rohde et al. 2009).

The described research and development approaches of Socio-Informatics are closely linked to the "practice turn" in social- and media sciences pursued in the collaborative research centre CRC 1187 ("Media of Cooperation") at the University of Siegen.

Possible ways in which research into practices and design work may relate to each other, concern, amongst others, the following questions:

- (Design space): how is this design space understood, defined, (de?) limited?
- (Research methods): How can specific social settings be investigated? How can design gain access to a field?
- ("Metadesign"): How can communication and transparency be supported in technology projects in an integrative manner that allows cooperative co-creation and individual appropriation even for persons with very different backgrounds and knowledge?
- (Interdisciplinarity): How can IT artefacts help to represent design choices in interdisciplinary consortia for representatives from heterogeneous fields?
- ("Translation"): How can ethnographic evidences help to ground design recommendations?
- (Reflexivity): How can design work itself be sensitized for its embeddedness in specific socio-cultural contexts?

### **The contributions in this issue**

The concept of "design case studies" (Wulf et al. 2015) has been suggested as a framework for design projects: after a qualitative pre-study, (participative) co-design activities take place and are finally analysed. The concept is meant to relate research into social practices within the application domain to investigations of those of the researchers and developers, in a way that allows to make otherwise "invisible work" at the interface between both fields visible. Specific situated conditions which shape the development of design ideas and are influenced (or mutually contoured) by the researchers themselves or within the "user-designer relationship" and the "user-technology nexus" are also in the focus (Oudshoorn & Pinch 2003).

In ideal circumstances design case studies consist of three steps: For the preliminary study, a combination of predominantly qualitative ethnographic and participatory research methods are being suggested

in order to create a comprehensive picture of practices, needs and requirements of the actors. In the IT design phase, co-design and participatory design approaches are in focus and provide opportunities for close user participation, for instance, by means of mock ups, prototypes and demonstrators. The subsequent appropriation study serves to evaluate and further develop the concepts and the IT artefacts using empirical investigations of their effects on the practices initially surveyed. The concept of design case studies may help classifying the four studies in this issue.

Under this perspective the study of *Reuter* and *Leopold* is the closest among the four to a full-blown design case study, as it involves a pre-study, derives considerations about design alternatives and -decision, and finally evaluates the product re-design on the basis of empirical evidences. It also depicts interesting problems and limitations when conducting practice-based computing within a commercial environment.

The works of *Wulf* et al. and *Aal* et al. draw on ethnography and the framework of design case studies. In the latter regard, one may classify these two studies as kind of pre-studies which aim at ethnographically illuminating a certain socio-cultural situation and an understanding of (media-related) cooperation practices from the perspective of the interviewees or through participant observation. The results of the analysis serve as first formulations of possible design ideas, which, in the next step, might inform and inspire the formulation of a cooperative project.

The study by *Nett* and *Bönsch* is based on project ethnography, a further-development of business ethnography. In the given case, project ethnography was applied without reference to design and did not represent a design case study, but showed that poor appropriability of technology represents a general problem for industrial organizations - even before or beyond the establishment of design projects.

In the following we will describe the studies in more detail:

Practice theories and their foci on agency within sociotechnical processes given, the study of *Bernhard Nett* and *Jennifer Bönsch* on technol-

ogy appropriation in small, metalworking enterprises describes these (in contrast to, say, IT- or eBusiness firms) as generally not associated with the 'knowledge economy'. Nevertheless, Nett and Bönsch are neither confronted with naïve pre-digital nor with lazy late-comers on an automation path outlined by today's discourse on 'industry 4.0'. In contrast: the study shows how factual organizations differ fundamentally from such mainstream narratives. The study adopts 'project ethnography', a research design which had - under the name of 'business ethnography' - been developed in the context of Socio Informatics to promote reflexivity in technology design projects.

As 'project ethnography' this conception is now applied outside the field of technology design. Three stages of research are interpreted as a sequence of the 'expropriation', 'alienation' and 're-appropriation' of intentions of the (industrial) partners. To understand their problems and learning processes is the target of the documentation- and analytical work described in this paper. Even when the classification of the study as Socio-Informatics may be questioned, the detected problems of the industrial actors to operationalize technological innovation are of indubitable importance for Socio-Informatics.

*Volker Wulf, Kaoru Misaki, Dave Randall, and Markus Rohde* provide an extensive field study on overland transportation in Madagascar, one of the poorest countries in Africa. On the basis of participant observation and informal interviews the essay paints a vivid picture demonstrating the challenges which customers, drivers and operators face when travelling overland with a "taxi brousse". The ethnographic study provides insights into the distribution of labour between the operators of the services and other actors, both in formally assigned roles (bus drivers, dispatchers) but also in informal ones which contribute to overland transportation.

The authors show that current discourses in the CSCW/HCI literature on technological support for public transport may be rather remote from local conditions in Madagascar (this might also be true for

other regions in the global South). While the Western discourse focuses on how to deploy dynamic location-based information to enhance public transport to the convenience of customers; this study shows that socio-political conditions may pose very special challenges here. The two first and second authors, Wulf and Misaki, have experienced such challenges first-hand during their four-week stay on the island and in numerous rides with a “taxi brousse”.

*Christian Reuter* und *Inken Leopold* present a three-phase study of the design and use of a prototypical media artefact to promote grocery shopping. The results of this study include participants' opinions and perspectives of using a location-based shopping app in their everyday shopping, and extensive design recommendations. Location-based applications in retail, especially beacon technologies, have not yet been well researched in Germany. Mainstream research in this areas aims at the experimental capturing of usage data and of reaction times, while customers are rarely asked for their opinion.

Drawing on the design case study conception (Wulf et al. 2015), Reuter and Leopold deploy an evolutionary research and development conception based on three steps. In their attempt to steer between frequently existing temporal limitations and the aim to proceed as practice-oriented as possible, they adopt an interesting mix of empirical methods. After an analysis of potential applications for beacon-based systems in retail, Reuter and Leopold start with an online consumer survey on related customers opinions, discuss the development of design ideas for an app based on the survey data, and finally provide a subsequent qualitative evaluation of the developed app prototype.

Last, but not least, *Konstantin Aal*, *Marén Schorch*, *Esmā Ben Hadj Elkilani*, and *Volker Wulf* present a comparative study on discussions and the spreading of political information in social networks such as facebook on the one hand and mass media on the other. What is particularly interesting is that the authors look at the situation after the Tunisian revolution and compare the situation to what colleagues observed dur-

ing the uprising. They focus on insights and reflections given by young people, who were not involved in the uprising, after the end of censorship in mass media.

From the viewpoint of a sample of young Tunisian women and men in urban as well as rural contexts, the authors demonstrate how individual information, communication, and media navigation practices evolve in relation to a changing and pluralising socio-political landscape. The qualitative investigation on the basis of participant observation and interviewing with young Tunisians and partly conducted by a young Tunisian researcher demonstrates the use of facebook and mass media before, during and after the revolution. It explores practices and attitudes of young Tunisian citizens that shape the transition to a “new normality”.

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