

IRIS

Selected Papers of the
Information Systems Research
Seminar in Scandinavia

Nr. 2 (2011)

Coordinating Editor:
Judith Molka-Danielsen
Molde University College, Norway

Issue Editor:
Kai K. Kimppa
University of Turku, Finland

ISSN 1891-9863



The IRIS Association is a chapter of the
Association for Information Systems

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Issue Theme “IRIS 34 ICT of Culture – Culture of ICT”

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IRIS 32 was hosted by Turku School of Economics and University of Turku with partners Åbo Akademi University and Turku University of Applied Sciences and was held at Ruissalo, Turku, Finland on 16th -19nd August, 2011.



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Credits

We wish to thank the IRIS 34 Organization Committee and Reviewers for their contributions to this book of selected papers.

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ISSN 1891-9863

ISBN 978-82-519-2882-3

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Layout: Type-it AS

Printed by: AIT Oslo AS

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Tapir Academic Press

NO-7005 Trondheim, Norway

Tel.: + 47 73 59 32 10

Email: forlag@tapir.no

www.tapirforlag.no

Publishing Editor: lasse.postmyr@tapir.no

Foreword

Judith Molka-Danielsen, Kai K. Kimppa

Information Systems Research Seminar in Scandinavia (IRIS) is the title of an annual meeting of Information Systems (IS) researchers. The IRIS seminar distinguishes itself as the eldest IS seminar in the world, as it has been established in 1978. IRIS is organised by the IRIS Association, which is a chapter of the Association for Information Systems (AIS). IRIS offers a unique format in the IS field that utilises working groups led by an established researcher in the field, and in which all the papers of the working group are read by all participants of that group. Each group member in turn comments on the other papers of the group. IRIS is also a forum for networking activities. In the traditional seminar segment called the IRIS games, participants learn to know each other through intellectual and team building exercises. Contact through these activities lead to both friendships and academic collaboration with lifelong impacts on careers. The IRIS seminar is especially beneficial to PhD students in helping them to establish new networks and aiding them in raising the quality of their research. In the late years, IRIS has been combined with the Scandinavian Conference on Information Systems (SCIS) to ensure the participation of a wide range of both starting and established academics in the IS field.

The articles of this second issue of the *IRIS Selected Papers of the Information Systems Research Seminar in Scandinavia* were originally proposed by the working group chairs and vice chairs (senior IS researchers). All of the papers of the IRIS seminar have gone through a peer review process, after which the chairs and vice chairs of the groups were requested to suggest one to two best papers of their groups for this publication, which were then improved according to the feed back from the IRIS seminar participants and finally passed through the selection criteria of the two editors of this issue, Judith Molka-Danielsen and Kai K. Kimppa. Judith Molka-Danielsen, the coordinating editor, represents the IRIS Association steering board, is the President of the IRIS Association and member of the board since 2008; issue editor Kai K. Kimppa was the Programme Committee Chair of the 34th IRIS seminar.

The 34th IRIS was hosted by University of Turku, Turku School of Economics, and held in Ruissalo national park, in Turku, Finland on the dates of August 16th to 19th, 2011. The theme of the 34th IRIS was ICT of Culture – Culture of ICT, as Turku was one of the two European Capitals of Culture during 2011, but also due to the importance of both the organisational culture's effect on IS and the culture within the IS field.

Selected Papers

Erik Olsson, Brian Lings and Björn Lundell, in their article "*Organisational Processes in the Secondary Software Sector: A Case study on Open Source Software Adoption*" give recommendations for knowledge transfer from a managerial perspective. They state that it is especially important that knowledge transfer is enabled from bottom-up and elaborate on what benefits for work practice can be gained from the changes introduced. Finally it is recommended that maintenance costs need to be taken into account early on in the project due to the differences of an open source software (OSS) system adoption to that of a proprietary system – an OSS system does not market itself in the organisation the same way a proprietary

system does. The introduction of OSS champions, strategists and specialists is offered as an answer to how to handle these issues correctly.

Rina Hansen looks at how 15 luxury fashion brands have developed their social and interactive online technologies in a four year period from 2006 to 2010 in the article "*How Fashion Brands Learned to Click – a Longitudinal Study of the Adoption of Online Interactive and Social Media by Luxury Fashion Brands*". A revised and extended version of Yang *et al's* (2008) 8C framework is presented, and found to be useful for luxury fashion brands' Web 2.0 technology adoption. It can be used both by the luxury fashion brands already existing in online environments and those aspiring to get visibility there.

In their article "*Developing Metrics for Analyzing IT Supported Student-Teacher Interaction in Higher Education*", **Linda Nordström, Pia Svanberg, Johan Lundin** and **Lars Svensson** the authors develop relevant metrics to measure the use of ICTs by teachers' for interaction with students. They find that teachers currently use various communication channels, which sometimes supplement each other, but at times can also be in conflict with each other. In the study, it is however found, that most teachers (81%) found the time used to communicate with students through ICTs to be time well spent.

Maike Hecht and **Susanne Maass**, in their article "*Software Design for E-Services*" describe the changing environment of e-services – many services are not offered by service professionals, but as self-service, or even as the authors call it, for a 'working customer'. Even though the companies have no formal obligation towards the 'working customers', it is beneficial for the companies to see to it, that their needs are taken into account, lest they loose the customers to competition. Thus, listening to the 'working customers'' needs and including them to participate in the design of the e-services they use will benefit both the customers and the companies.

In the article "*Hybrids Acting on the Hybrid Arena – Investigating Crimes Committed by Digital Natives*" **Erik A.M. Borglund, Lena-Maria Öberg** and **Thomas Persson Slumpi** present a problem facing today's criminal investigation in a situation where both analog and digital crime is used combined. The criminals work as 'natives' in both digital and analog environments, whereas the police has these roles typically separated. This provides the criminals with an edge on functioning in hybrid arenas. The article calls for the police to create a holistic understanding of both areas to be able to fully answer the changing needs of the criminal investigation – and if need be, to reorganise the law enforcement.

In the article "*Priming a Pilot Implementation: Experiences From an Effects Specifications Workshop*", written by **Magnus Hansen** and **Maria Ie Pedersen**, the initial findings of an exploratory action research study conducted in the Danish health care sector about effects specifications using the systems development method Effects-driven IT development (EDIT) to aid in developing an electronic ambulance record (EAR) in prehospital care system are reported. The authors approached the stakeholders – who came from a wide range of different groups – first with interviews to collect a large amount of desired effects of the system to the work practices. A workshop organised after the interviews was used to prioritise the desired effects to 20 most important ones. In the study it was found that explaining both the political environment as well as the technical functionality of the IT artefact were equally important, as the prioritisation of effects depended on understanding them.

Mari Ainasoja, Vivek Kumar, Mikko Ahonen and **Mikko Ruohonen** write about how social media shapes advertising sector in Finland and how this relates to development needs of customer relationship management (CRM) systems in their article "*Social Media, Convergence and IT - A Case of Finnish Advertising Sector*". They categorise the implications of this convergence to three areas of integration in marketing practice: integration of 1)

company functions, 2) media and message parts and 3) service providers, and provide seven development needs for social CRM systems in the advertising sector.

In the article “*Information Classification on University Websites: A Two-Country Card Sort Study*” **Ather Nawaz**, **Torkil Clemmensen** and **Morten Hertzum** use brainstorming, card sorting and information-retrieval tasks to study how 14 Pakistani and 14 Danish students classify information of university websites. The study finds that despite some similarities in the way the student groups classify information, clear differences can also be found in all three activities. Some preliminary results on how this could be explained through cultural differences are also presented in the article. It seems, that comparing locally produced and used websites could aid in cross-country Human Computer Interaction (HCI) research and practice.

Lars-Olof Johansson, **Ulrika Lundh Snis** and **Lars Svensson** look into “*Exploring Brokering Situations in an Innovation Boundary Context*” on a living lab process. The three different stakeholder groups studied were researchers, ICT developers and next of kin to demented elderly persons (as users). The authors describe the boundary relationship as a duality of boundary objects and brokering activities and situations. Boundary objects play an important role for communicating perspectives and knowledge sharing among Communities of Practice (COP). Brokering are done by people who introduce elements of practice between COPs. In the paper it was found that the use of several different kinds of boundary objects helped the different groups to understand each-other. The authors contribute with a process model that describes the dynamics of an innovation boundary context with two levels of brokering: product/service brokering and process brokering.

In the article “*The Walking Video Interview (WVI) as Potential Technique to Tap into the Everyday Experiences of ICTs*”, **Pernilla Gripenberg** combines lessons learned in the domestication, new media and communication research, mobile ethnography and the use of video for studying the interaction of the social and material to how contemporary, technology infused everyday life could be better understood using a walking video-interview. The walking video-interview can provide us with a better understanding of the individual ICT-landscape the way the observed users experience the technologies which they use. Sociomaterially complex environments require rich (and due to the richness, challenging) methods for a better understanding of them.

In their article “*Information Security Culture in Russian ICT Small and Medium Sized Enterprises*”, **Hannakaisa Isomäki** and **Oleksandr Bilozerov** present a Grounded Theory based study in which they produce an initial categorisation which shows essential features of information security culture in Russian ICT SMEs. As information security awareness of corporate managers in the studied companies seems to be low and information security related investments are seen rather as ‘just one more expense’, the development of information security culture of the companies is fairly slow. Isomäki and Bilozerov categorize the areas which need to be taken into account for a better information security culture to issues of awareness, requirements in business partnership, funds, policy, personnel training, violations and trust.

Hanne Cecilie Geirbo’s article “*The Community Power Concept: Mitigating Urban–Rural Digital Divide with Renewable Energy Mini Grids*” explains how renewable energy mini grids extended from mobile towers can provide electricity for various purposes in rural areas of low Gross Domestic Product (GDP) countries – both for domestic and commercial purposes of supporting the use of ICTs. To be able to utilise ICTs for the benefit of the rural community, human resources, social factors (e.g. social exclusion or gender) and local economic conditions need to be considered in a holistic manner, taking into account issues such as urban-rural digital divide, electricity access, topographic challenges and economic

sustainability. For the system to be sustainable, the telecom company providing the energy must benefit from expanding their markets, but also the government needs to commit to the concept – to a concept that starts small but is capable of expanding to the needs of the community as both domestic households and local industries electricity use grows.

Siw Lundqvist informs the readership of the book on findings which are needed for a successful post-merger integration, such as embracing openness to change, the necessity of providing means for adapting to new systems and to contribute to new routines, in the article “*A Perspective of Post-Merger Integration: Administrators Do Not Necessarily Resist Changes.*” Even though employee resistance to change is often presupposed, if the merger is handled well, a majority of those affected by it can still rather wish for further changes – sometimes even if the merger of the systems is viewed negatively. The research is based on a longitudinal study starting already pre-merger, and shows that the negative effects described in merger related literature can be countered.

The Walking Video Interview (WVI) as Potential Technique to Tap into the Everyday Experiences of ICTs

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Abstract. As all aspects of life are increasingly ‘digitalized’, how humans live and experience everyday life is fundamentally transforming and new lifestyles are created. Today information and communication technologies (ICTs) include ever more features and are increasingly mobile and being used across a variety of everyday contexts and life environments, like home, work and public spaces. These shifts may require both new lines of inquiry and new techniques for studying them. This paper addresses the second need by exploring how contemporary, technology infused everyday life could be studied empirically and in particular in relation to experience. The paper introduces the term *technology-as-experience* and a form of *walking video interviewing* (WVI) as a potential technique to empirically capture the intertwined and entangled nature of human-ICT relationships and what they mean for the people involved. The paper combines lessons learned in the domestication, new media and communication research, mobile ethnography and the use of video for studying the interaction of the social and material, and lists a number of potential benefits in using the WVI technique. It also considers in detail some of the practical implications of using the technique, thus contributing to the IS and organizational literature in an empirical-methodological way.

Keywords: Information and communication technology, qualitative method, sociomaterial, everyday life, video interview, experiential computing, technology as experience, ICT landscape

1 Introduction

As all aspects of life is increasingly ‘digitalized’, how humans live and experience everyday life is fundamentally transforming and new lifestyles are created (Bradley 2006; Lesnard 2005; Frissen 2000). Today information and communication technologies (ICTs) include ever more features and are increasingly mobile, like laptops, smart phones and I-Pads. New uses of ICTs increasingly cover private and leisure activities, such as communicating and socializing with friends, playing games, displaying and sharing photos and videos, in

addition to using other Internet services, like GPS, shopping, banking, planning travel, reading news, accessing public service and finding information, both locally and globally (e.g. Gripenberg 2002). This not only enable ICT use across a variety of everyday contexts and life environments (work, home, school, and public and private spaces), but increasingly blurs the boundaries between them (Avery & Baker 2002; Hernes 2004; Shumate & Fulk 2004; Peters & Allouch 2005), for example, by transforming how work, organizations, and employer-employee relationships may be organized across time and space (e.g. Wajcman et al. 2008; Avery and Baker 2002). The expanding use of ICTs outside work contexts is a rather new but very rapidly expanding phenomenon, also among ever younger users (Katz and Aakhus 2002; Haddon 2004; Kraut et al. 2006; Parjo et al. 2008; Carrington and Robinson 2009).

While computing technologies are becoming ubiquitous and new users of computing are constantly emerging, the need for increasing our understanding of these transitions, how they occur and what they mean for human life is all the more pressing (e.g. Bradley 2006; Yoo 2010). New lines of inquiry as well as methods and techniques may be required, as the traditional way of studying single ICTs (like mobile phones, PCs, Internet) or single phenomena (like technology acceptance, learning, use) in single contexts (like home, leisure or work) is far too limiting to understand contemporary transitions and the intertwined and entangled nature of humans and ICTs (e.g. Dahlbom 1996; Wise 1997; Rose & Jones 2005; Orlikowski 2010) and what they mean for the people involved (e.g. Yoo 2010). Therefore, this paper argues that, in addition to analytically distinguish technology-as-artifact and technology-as-practice (Orlikowski 2000), we need to study *technology-as-experience* to tap into the sociomateriality (Orlikowski & Scott 2008) of ICT infused everyday life. Further, by combining lessons learned on multi-method approaches in the domestication, new media and communication research, with recent developments in mobile ethnographic methods, and the use of video for studying the interaction of the social and material, the paper introduces a form of walking video interview as a potential technique to empirically capture the sociomateriality of contemporary life, with particular focus on the experience of ICTs.

The paper first reviews the emerging literature that identifies the complexity of contemporary human-ICT relationships by empirically including several ICTs and/or their use in several contexts and identifies some research gaps and the need for more study in the proposed area of IS/IT research. The paper then contrasts prevailing perspectives in the study of ICT as *artefacts* or as *practice* with the need for viewing technology as *experience*. The paper then discusses how experiences of human-ICT relationships has and could be studied using multi-method approaches, combining walking interviews with video techniques into the 'walking video interview' and the potential benefits of using such a technique in front of observation, taking field-notes, and interviewing. Lastly, the paper discusses some practical issues that need to be considered when using the technique.

2 Empirical research on the sociomaterial nature of human-ICT relationships

A majority of studies focusing on ICT use have focused on a single technology, such as the PC, the mobile phone, or a certain IS, and/or single context, like organization, work, or home. At present a small but emergent body of socio-cultural ICT research where empirical studies have integrated the use (and included also non-use) of several ICTs (e.g. Internet, mobile phones, or more complex information systems) and/or different contexts (e.g. work, home) into the same study can be identified. This body of research has studied the role of ICTs for changing, mediating, or relaxing time and/or space constraints (e.g. Anderson 2007; Green 2002; Schwanen and Kwan 2008; Wajcman 2008), on work-family or work-home divisions and boundaries (e.g. Avery & Baker 2002; Peters and Allouch 2005; Wajcman et al. 2008) on quality of everyday life (e.g. Frissen 2000; Jokinen 2005; Lee et al. 2008; Leung and Lee 2005) or work-life (Korac-Kakabadse et al. 2001), on personal/work identity (e.g. Brocklehurst 2001; Lamb and Davidson 2005; Walsham 1998) and on non-use of ICTs to better understand the complexity of 'use' of ICTs (Punie 1997, Selwyn 2003).

Indeed a few studies consider the range and conditions of specific technologies even though this is a growing feature of contemporary ICT use. How are various ICTs integrated and used in connection and across contexts? Or how do people potentially experience such use of multiple ICTs across contexts, as has been suggested in the work context (e.g. Korac-Kakabadse et al. 2001)? Further, as households are potentially becoming ICT-supported workplaces, little attention has also been given to how the home context interferes with the employer-employee relationship, or how ICT-enabled remote work interferes with household practices (Avery & Baker 2002); or on how, through mobility, public spaces intertwine with the relationship. The role of ICT for identity construction and potential role conflicts (Brocklehurst 2001; Walsham 1998) is also a rather neglected area. Although this is not an exhaustive review, it highlights the need for more systematic empirical research on the individual-level impacts of the increasing infusion of ICTs in the home and public – in addition to the organizational – contexts, in combination with the constant development, convergence and mobility of contemporary ICTs (see also Yoo 2010 for a more systematic agenda of the research opportunities in the area of experiential computing in IS). My aim is to offer some suggestions on how the sociomaterial nature of human-ICT relationships could be studied on the individual level in practice. This is what I turn to next.

3 'Individual ICT-landscapes' and 'Technology-as-experience'

How can we empirically study the research problems exemplified above to better capture the sociomaterial nature of human-ICT relationships? While *practice* has become a dominant lens for studying the recursive sociomaterial relationships between humans and

technology in the work and organizational setting (e.g. Boudreau & Robey 2005; Orlikowski 2000; Suchman et al. 1999), *practice* (as it is predominantly applied in these studies) does not seem to readily capture what goes on in the human-ICT relationship where work is not the only or predominant activity of the ICT user, but it is combined also with other, e.g. leisure related activities. In contrast, *domestication* has become the dominant lens through which human-ICT relationships are studied in the home context (e.g. Lehtonen 2003; for review see Haddon 2004&2006), capturing to a greater extent how technology is experienced, rather than enacted and used or even adopted. In an effort to accommodate these different conceptualizations of recurring human-ICT relationships and to integrate these literatures, I have offered the lens of ‘*individual ICT landscapes*’ (Gripenberg 2010) as a context within which to empirically study human-ICT relationships as they unfold across settings (e.g. home, work, travel). By the empirical study of individual ICT landscapes it is possible to capture the use of various ICTs as they are used across settings and in combination (e.g. laptop-mobilephone) or as substitutes (e.g. Skype instead of phone, or landline instead of mobile phone). Building on Orlikowski’s (2000) work, I further offer here three analytical distinctions to guide the empirical study of individual ICT landscapes: *technology-as-artifact*, *technology-as-practice*, and *technology-as-experience*. These are briefly outlined below.

While developing the ‘practice’ lens to technology, Orlikowski analytically distinguishes between the artifactual character of a technology and its use, as in her view in both research and practice these two aspects of technology are often conflated. She uses the concepts of technological artifact and technology-as-practice to highlight the distinction. A *technological artifact* is:

an identifiable, relatively durable entity, a physically, economically, politically, and socially organized phenomenon in space-time. It has material and cultural properties that transcend the experience of individuals and particular settings. ... [It] appears in our lives as a specific machine, technique, appliance, device or gadget. (Orlikowski 2000, p. 408)

At first sight then in the study of individual ICT landscapes, an individual’s ICT landscape comprises of ICTs as artifacts: machines, devices and gadgets that surrounds the individual in his or her life contexts, e.g. at work, at home and those that are portable and thus transcend various contexts in time-space. These are identifiable and may consist of PCs, smart phones, I-Pads, Black Berries, digital cameras, modems, printers, fax machines, memory sticks, telephones, discs etc and they are usually supported by a power source, like electricity or batteries. Further they are usually connected to each other or larger networks (e.g. intranets, Internet, companywide IS systems, phone networks) through cord, antennas and radio waves, or they are somehow otherwise physically connected e.g. through insertion (like CDs or memory sticks). They are acquired and maybe at some point discarded of – they represent the material. The first potential contribution of empirically studying individual ICT landscapes through the concept of ICTs-as-artifacts is a better understanding

of how individual users manage these increasing connections between ICTs across contexts, how they get the technologies fit together and ‘talk to each other’, the ‘archeological layering’ (Suchman et al. 1999) of ICTs that are piling up in the individual ICT landscape of any ICT user. Further, the approach highlights the further connections, the embeddedness of ICTs in larger infrastructural networks of e.g. power supply, radio coverage, and technological support.

The second distinction, *technology-as-practice* Orlikowski defines:

[U]se of the technology involves a repeatedly experienced, personally ordered and edited version of the technological artifact, being experienced differently by different individuals and differently by the same individuals depending on the time or circumstance. ... [It] refer[s] to the specific structure routinely enacted as we use the specific machine, technique, appliance, device, or gadget in recurrent ways in our everyday situated activities. (Orlikowski 2000, p. 408)

Understanding ICTs without considering how they are used is still rather impossible which is why the use of ICTs in the individual ICT landscape, *technology-as-practice*, would have to be considered as well. In the individual ICT landscape, *technology-as-practice* would thus turn up as the particular ways in which the technological devices and gadgets are used, what they are used for and why. Looking at technological artifacts from a *technology-as-practice* point of view, some uses are often already indicated in the technologies (c.f. affordances), like calling people with a mobile phone, while how and why they are used are not equally obvious, like developing signalling systems and not answering the mobile phone or how it is used in combination with a laptop. The approach would further allow for an analysis of how devices are used in combination or in supplementary ways. While Orlikowski (2000) and much consequent work focus mainly on *technology-as-practice*, or how technology is enacted in practice and much less on technology as artifact or the relationship between the two (Hanseth et al. 2004), using an individual ICT landscapes approach, make both the aspects of technology, and how they interact possible to study in depth. More in-depth studies of individual ICT landscapes would provide for a better understanding of for example how seemingly similar or different ICT landscapes are appropriated and used, or enacted (Boudreau & Robey 2005; Orlikowski 2007; Suchman et al 1999) by the individual. Understanding the relationship between technology as artifact and technology as practice, or the phenomena that emerge when technical and social systems interact (sociomateriality) is a central concern e.g. in the IS field (e.g. Hanseth et al. 2004).

In my view *technology-as-artefact* and *technology-as-practice* is, however, not enough to capture the essence of the sociomaterial nature of human-ICT relationships. Drawing on the literature of domestication, media consumption and my own work on emotionally experiencing ICTs (e.g., Gripenberg (forthcoming); Haddon 2006; Lehtonen 2003; Meyrowitz 1985), I would add a third distinction to Orlikowski’s original two: *technology-*

as-experience. Technology-as-experience encapsulates both to how we experience a technological artifact, as well as how we experience our use and the consequences of the use of that artifact. Again, this is an analytical distinction to sensitize us to recognize the experience, as it is empirically interwoven with the experience of the artifact, its use, and the spatio-temporal context within which this experience occurs (see also Yoo 2010 on experiential computing). Technology-as-experience entails both emotional involvement and sensemaking of the experience (Gabriel 1995; Sturdy 2003; Weick et al. 2005) and thus displays some of the values that emerge and prevail in the human-ICT relationship (e.g. Orlikowski and Iacono 2001). Values that are not only merely instrumental (leading to an emphasis on usability, usefulness, task-technology fit, productivity, user satisfaction of technology), but inherent in the experience, like listening to music or enjoying a game (Yoo 2010). Understanding technology-as-experience is thus vital for increasing our understanding of the sociomaterial nature of human-ICT relationships, i.e. what it means to live with ICTs (e.g. Orlikowski & Iacono 2001); how ICTs are reshaping everyday life, for example in terms of well-being and identity construction. These are fundamental and existential questions that have to a greater extent informed the domestication research (e.g. Haddon 2006) in new media and consumption, but are, in my view, increasingly needed to inform also the information systems research more broadly (see also Yoo 2010). A question remains though: how can we empirically capture the sociomaterial nature of human-ICT relationships across spatio-temporal contexts (ICT-landscapes) and use the analytical distinctions of technology-as-artifact, -practice and, -experience? In effect, what kind of techniques can we use to study the spatio-temporal and sociomaterial experience of ICTs and their use?

4 Approaches to study experience of human-ICT relationships in everyday life

As studying experience of ICT use in everyday life is only just being called for in the mainstream IS field (e.g. Yoo 2010), I here turn to other disciplines that are more familiar with the study of everyday life experience in general and of ICT use in particular to find examples of how experience could be studied. I will begin with a review of literature in the domestication, new media and communication fields, where the need for multi-method approaches to study experience of ICTs has been recognized. I then turn to look at recent developments in the area of ethnographic research, with a particular focus on mobile ethnographic methods like shadowing, go-alongs and the walking interview.

4.1 Multi-method approaches

Several authors in the fields of domestication, new media and communication have reported studies that include the use and experience of different ICTs throughout the various contexts one individual is moving through in his or her daily life. These existing studies

have shown that there is a need for including multi-method approaches, triangulating various data gathering methods (e.g. Frissen and Punie 1998) in order to better understand the sociomateriality of everyday life with ICTs; how this is experienced and what meanings the use of ICTs across contexts and in combination means for the individual. One reason for the need of multi-method approaches is that it has proven difficult for respondents to talk about their everyday use of media and ICTs and especially their underlying communication needs (Frissen 2000). A way to solve this problem has thus been to use a variety of methods to contextualize the respondent's use and needs as much as possible. These studies illustrate the criteria that techniques for empirically studying human-ICT relationships should fulfill in order to successfully capture the inherent sociomateriality of everyday life.

In her study of ICT use of dual career families in the Netherlands, Frissen (2000) used some successful methods for contextualizing as much as possible the ICT use of the studied family members. Frissen combined in-depth interviewing and observation, with semi-structured questionnaires, ICT-use diaries, mental mappings of the house (to visualize the physical space in which ICTs were placed), and network diagrams (to make visible the social networks the households were embedded in). Her method proved particularly successful in explaining the role of ICTs for solving everyday problems in people's lives, and for understanding people's needs, practices, experiences, and problems as ICT users. Also Jokinen (2005) used a mental mapping method in her study on the everyday lives of Finnish adults. Venkatesh (2001) also demonstrated how in-depth ethnographic research in combination with survey techniques, time diaries, and focus groups, provide a rich context for asking questions and for yielding entirely new ways of conceiving and understanding the role of ICTs in the home. A recent study has studied the ICT landscapes of students successfully using a method Riddle and Howell (2008) call 'The day experience method'. In this method students have been cast the role of co-researchers as they themselves collected data using different means, such as disposable cameras, structured diaries, and voice recorders, to record their ICT use during the course of one entire day (Riddle and Arnold 2007). After the day experience, selected students were brought together in focus groups to show their photographs and describe their day.

In a study on domestication of new technologies, Lehtonen (2003) used a method of interviewing people in their homes, including demonstrations. He could probe into more detail around the appliance while the interviewee was showing the appliance and how and what he or she used it for. This method seemed especially successful for getting at various stages and trials in the adoption and domestication process. In a study of 50 families' experiences with a new PC in their homes (Gripenberg 2002, forthcoming), written essays proved to be especially successful for revealing both rational and emotional sentiments (e.g. Gabriel 1995; Sturdy 2003), as well as the meaning of experiences in the forming and unfolding of new human-ICT relationships. As Gabriel (1995, p. 480) notes: "the storyteller is not concerned with 'fact-as-information' but with 'fact-as-experience'." Distinguishing like this between information and experience emphasize the meaning of an

experience that the storyteller can engage with when constructing a story in which he or she makes sense of everyday experience (Gabriel 1995; Weick et al. 2005).

Common to the first set of studies reviewed above is, first, the use of multiple methods to capture the sociomateriality of everyday life experience with ICTs, but also the demonstrated need to visualize and contextualize the studied situations using techniques that capture these visualizations effectively. In the second set of studies presented the emphasis is on the need to verbalize events to get at the meaning of an experience. While the use of stories seems to be a fruitful mean of eliciting experience and meaning in the human-ICT relationship, the use of observation may reveal 'real time' emotions. Using stories and observation in combination, then seems to reveal an even richer picture and deeper understanding of the sociomaterial nature of human-ICT relationships. In sum, a combination of visual and verbal methods seems to be most successful for understanding the sociomateriality of the ICT infused, contemporary everyday life.

4.2 Mobile ethnography

In the effort to understand everyday life, ethnography is a common research method to choose, traditionally relying on data gathering techniques such as observation and interviewing. Recent critique is that these techniques are limited for understanding the experience of everyday life in two ways (Kusenbach 2003). First, observational methods are limited in that people do not usually comment on 'what is going on' while acting in their everyday life contexts, thus making their experiences inaccessible. Second, sit-down interviews usually keep participants from engaging in 'everyday activities' as interviews are typically conducted outside the context where these everyday activities occur, thus making it difficult to grasp what participants are 'talking about'. In both cases important aspects of the lived experience may be left out, in particular when the research interest is in the stream of experiences and practices as participants move through and interact with their physical (i.e. material and spatial) and social environment (Kusenbach 2003). To address these limitations a variety of mobile ethnographic techniques have been suggested, like shadowing, the go-along, and the walking interview.

Shadowing is a form of ethnographical data gathering technique commonly used in organization research, where a researcher closely follows a member of an organization, for a longer period of time taking detailed notes on actions and behavior and prompting the participant for a running commentary throughout the shadowing period. It is a technique that is concerned with the direct study of contextualized action: it gives insight into the specific experience of the shadowed individual with minor interpretation and constrains on the part of the participant (McDonald 2005). As compared to other qualitative methods, like participant observation or interviewing, shadowing has the ability to capture the varied and fragmented nature of e.g. organizational life, and, because of its capacity to link actions and purpose, to address important *why* questions, instead of what and how questions (McDonald 2005). Commonly shadowing focuses on the individual, rather than e.g.

departments companies, or functions and it is concerned with the direct, first-hand nature of experience, instead of second-hand accounts of actions, such that may be gained by interviewing, or formal representations that in organizational contexts may be gained by documentary analysis (McDonald 2005). Shadowing is a holistic approach suitable for studying *one actor* involved in multiple organizational issues and processes, as opposed to studying processes and issues that attract many actors. Further, as McDonald (2005, p. 469) point out:

Any enquiry where the unit of analysis is not just the individual, but also the network of activity and relationships, or organizational context that surrounds them would also benefit from the use of this data-generation method.

Another related ethnographic data-gathering technique, commonly used in sociological and geographical research, that focuses on the lived experience *in situ* bringing greater phenomenological sensibility to ethnography (Kusenbach 2003), is the go-along (e.g. Kusenbach 2003) or walking interview (e.g. Evans & Jones 2011; Jones et al 2008). When conducting go-alongs, the researcher accompany individual participants in their everyday activities and outings and, through asking questions, listening and observing, they explore their subject's stream of experience (Kusenbach 2003). Kusenbach (2003) identifies five thematic potentials of go-alongs: perceptions, spatial practices, biographies, social architecture, and social realms. Go-alongs can (Kusenbach 2003, p. 466):

- unveil the complex layering and filtering of *perception*, thus helping ethnographers reconstruct how personal sets of relevances guide informants' experiences of the social and physical environment in everyday life
- offer insights into the texture of *spatial practices* by revealing the subjects' various degrees and types of engagement in and with the environment.
- provide unique access to personal *biographies* by highlighting the many links between places and life histories, uncovering some of the ways in which individuals lend depth and meaning to their mundane routines
- illuminate the *social architecture* of natural settings, such as neighborhoods, as they make visible the complex web of connections between people: various relationships, groupings and hierarchies, and how informants situate themselves in the local social landscape
- facilitate explorations of *social realms*: the distinct spheres of reality that are shaped by varying patterns of interaction.

In essence, the go-along method makes “visible and intelligible how everyday experience transcends the here and now, as people weave previous knowledge and biography into immediate situated action” Kusenbach (2003, p. 478).

While a range of techniques (as presented above) that have proven successful are readily available for the in-depth studying of individual experiences of everyday life – with or

without ICTs – and their meanings for the individuals experiencing them, it is surprising that video has not been a common way to gather contextual data on human-ICT relationships in everyday life. Filming people’s ICT use while walking along and interviewing them would allow for demonstrations where the use can be captured in context and probed into simultaneously. Filming people using ICTs in and across different contexts would also visualize what may have become the ‘obvious’, i.e. how ICTs have become mundane and taken for granted in our surroundings and therefore not so much critically reflected upon or even possible to verbalize, yet having a great impact on how we conduct and experience our lives. I will elaborate on the inherent potential but also practical considerations that the use of video interviewing may have for sociomaterial research in the next section.

5 The walking video interview (WVI)

With contemporary technology the use of video recording for gathering data has become a feasible option for social scientist (Knoblauch et al. 2008; Schnettler and Raab 2008). As video does not only record picture but also sound, with a little practice, the use of video allows for both observing and interviewing in the stream of real time events, where both social and material cues can be obtained simultaneously on the video and audio recording (e.g. Downing 2008). To gain insight into the potential of using video, in comparison to other data-gathering techniques, like observation and interviewing, and how it could be used to study the sociomateriality of everyday life with ICTs, I draw here on examples from sociological research that has used photo and video successfully to contextualize and visualize the materiality of everyday experiences and their meanings – not in relation to ICT or even technology, but to other materialities.

5.1 Potentials of using the WVI

Using video for interviewing and observing opens up for fully new ways of studying human-ICT relationships, in particular with a focus on lived experiences (e.g. Downing 2008), emotional bond construction (e.g. Konecki 2008), and in the making of places (e.g. Pink 2008). Using video and interviewing and observing people in their real-time context, or while on the move, allows subjects to reflect on their experience right there and then, but it also allows for *post reflection*. As the video can be watched and contemplated again and again together with the subject, it allows the subject to ‘participatorily’ interpret the video, and this can be done also in groups with other subjects participating in the same study, allowing for broader reflection among participants. Kolb (2008) reports on a similar method using photos, which she has termed “photo interview”, where subjects are involved in taking photos of specific objects/contexts in their social and material surroundings that relate to the research question and that are meaningful to them. These photos are then verbalised and reflected upon in an interview with the researcher and possibly in

collaboration with other participants. In the analysis, photos, interview transcripts and observations are analysed. (This method is similar to the day experience method described earlier.)

Another potential of the method is that using video allows the interviewer to *capture the context in real time* while on the move much more carefully and in much more detail than possible with other visual techniques like observing and taking field-notes. Video also allows the observer to *note overlapping activities of several persons* at the same time with an accuracy and detail that is impossible to record with paper-and-pencil into field-notes (e.g. Suchman & Trigg 1991). It also *corrects our tendency to see in a scene what we expect to see* instead of what actually occurs, and in analysis allows us to shift our focus of *attention to aspects we did not notice while on the scene*, but nevertheless were captured on the video recording (Suchman & Trigg 1991). Further, video interviewing allows the interviewer to ask questions about objects or settings in the context that would be difficult to answer verbally. Thus, it allows the researcher to *tap into the necessarily tacit dimensions* of the human-ICT relationship and capture an answer to otherwise challenging questions like, ‘can you show me how you do X, or what you do with Y, or how you use Z?’ The method thus also opens up for considering *aesthetical dimensions* to a greater extent than other data-gathering techniques, as it allows the subject to verbally reflect on and point to visual cues that are simultaneously captured on video. Using video interviewing, it is further, possible to capture when a subject is *simultaneously showing something, talking about it, and even telling a related story* about some other event that is associated with the object/situation at hand, as “[v]ideo invites informants to produce narratives that interweave visual and verbal representation” (Pink 2004, p. 62, cited in Downing 2008) producing rich and multi-dimensional data. Using video for research purposes seemingly provides potentially successful ways to capture the interaction with the material and the social simultaneously while for example touring and individual’s ICT landscape, hence I propose the WVI as a very potential technique to capture and tap into the sociomaterial nature of human-ICT relationships and experiences in everyday life.

5.2 Practical considerations while video interviewing

Video interviewing requires a number of considerations to be made along the research process in the areas of: generating video data; analysing and interpreting video data, and in presenting results from video-based data (e.g. Schnettler and Raab 2008). For example one should avoid thinking that video represents the ‘real-world-as-it-happens’, as video is just another way of representation of the world. The influence of the camera on the behavior of the subject also has to be considered (Schnettler and Raab 2008), giving that video may not be considered “natural data”, i.e. recorded in situations affected as little as possible by the researcher (Silverman 2005, cited in Schnettler and Raab 2008). However, video can record “natural situations”, sympathising strongly with ethnography. This strand of video analysis

can reasonably be referred to as “videography” (Schnettler and Raab 2008; see also Pink 2008).

Given the richness of the combination of video and audio data, analysis is demanding. One reason is the sheer complexity of the data that requires clear analytical and methodological frameworks to help deal with the complexity (Schnettler and Raab 2008). A clear advantage of video in turn is the inherent sequentiality in the unfolding of recorded events and interactions. Data give way to moment by moment scrutiny e.g. using slow motion, focusing on a particular part of the picture, amplifying the size etc. that digital and high definition technology allows for (e.g. Schnettler and Raab 2008).

Transcription of the combination of video and audio data, however, may pose challenges and needs careful consideration, as it forms a major part of the analysis in qualitative research (Schnettler and Raab 2008; Suchman & Trigg 1991). One way is to transcribe the audio part and make reference to interesting visual cues in the transcript. This can be done by entering the time in which the cue appears in the video recording. Transcripts can then be coded and analysed using software commonly used to analyse qualitative data, like N Vivo or Atlas.ti, or the footage can be coded directly with these softwares using time in video recording as reference. It is also possible to edit the footage into shorter clips that are then coded, using video editing software, if one wants to put more emphasis on the visual data in front of the audio. Note, however, that file formats of cameras and computer software for video editing are not always compatible, which means deciding on analysis and checking software and hardware compatibility is advisable to do before actual video data gathering.

There are also very hands-on and practical considerations that have to be made by the researcher while collecting the data, for example on how to engage with subjects and perhaps following an interview script while filming and perhaps even moving around at the same time (e.g. Downing 2008). The researcher also has to consider what to focus on while filming: who or what should be in the picture frame and what should be left out? Such considerations are perhaps best guided by the research questions and issues in focus of the research. Other practical considerations may involve, for example, what camera angle to use, at what distance to film, is there sufficient lighting, and does the microphone adequately capture the sound? Downing (2008) thus suggests that the researcher should be familiar and comfortable with his or her equipment beforehand and have an open mind throughout the process. Practicing, testing and piloting the research design may thus be pivotal for using video successfully in social research in general and in WVIs in particular.

Reporting on findings when using video should not deviate much from other qualitative methods, where text, figures and tables are the norm, while also photos, screen-shots, drawings etc. are becoming usual as well. While inserting videoclips into text, for example in journal articles, is not common, it should not be technically impossible to include in online versions and may perhaps be something for social scientists to consider for the future. For conference presentations, however, using video clips to illustrate a point is of course excellent.

Filming in “real life”-settings like the home or the workplace also involves ethical considerations, as one may capture overheard conversations or witnessed situations on video that may be particularly sensitive or somehow critical to the subject. Gaining access and building relationships may thus be a challenge and may require time to develop. Therefore, it is also important to continuously concern for the establishing and maintaining of good and trustworthy relationships with subjects under study. This can be achieved e.g. by informed consent on what will and will not be in the film, how the data will be used, stored, presented, and reported, and how anonymity of subjects’ identities and sensitive information will be guaranteed.

6 Discussion and conclusions

This paper set out to explore how contemporary, technology infused everyday life could be studied empirically in order to capture the intertwined and entangled nature of human-ICT relationships and what they mean for the people involved. The paper argued for the need to understand *technology-as-experience* and introduced a form of *walking video-interview* (WVI) of individual ICT landscapes as a potential technique to empirically capture and tap into the sociomateriality of contemporary life. The paper combined lessons learned in the domestication, new media and communication research, mobile ethnography and the use of video for exploring the interaction of the social and material in the context of human-ICT relationships in everyday life. Further, it listed a number of potential benefits in using the WVI technique as compared to more traditional techniques, such as observation and interviewing, and considered in detail some of the practical implications of using the techniques.

While the paper draws on existing research in a variety of areas, I claim that the WVI technique, in the form of a guided tour by the informant through his or her individual ICT-landscape and with a particular focus on the experience of ICT, is novel to the IS field and a contribution to the study of experiential computing in particular. While the data gathered using the technique is rich and thus challenging for the researcher, studying sociomateriality is complex enough to require a similar amount of complexity in the methods of observing (Law and Urry 2004). The technique seems particularly well suited to the first research opportunity in experiential computing as identified by Yoo (2010):

How does the entanglement of two aspects of sociomateriality—digital and physical— influence the contour and possibilities of digitally mediated experience in everyday life? How does sociomateriality shape, and how is it shaped by, the distributed agency in spatiotemporal and social contexts? How does the use of multiple and heterogenous digital artefacts in the *durée* of everyday life shape digitally mediated experiences? How do digitalized environments affect our experience of time and space? How do digitally mediated experiences transform the meanings of familiar, everyday activities? (Yoo, 2010, p. 223)

Further, Yoo proposes that *desirability* will be a new and important criteria against which digitalized artifacts in the experiential computing paradigm will be evaluated, including attributes such as ethics, aesthetics, ergonomics and environmental responsibility. At face value, the proposed video-interview technique provide ample opportunity to explore such issues. Yoo also highlights the need for considering issues of infrastructural convergence between digital, physical, and cultural infrastructures as information and communication technology moves deeper into everyday life. Also here video-interviewing could provide one means to capture this. By proposing a specific technique to capture the sociomaterial nature of human-ICT relationships the technique is also a contribution to the perspective of sociomateriality that may yield further results, for example in relation to sociomaterial agency.

In conclusion then, although the WVI technique, in particular in the form of guided tours through individual ICT landscapes, needs to be further tested in practice, it seems like a promising way to empirically capture the sociomateriality of contemporary life – a quest that will occupy IS research for a considerable time in the future if Yoo’s call for research in this areas is taken up on by the community.

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