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# Information Behaviour and Practises Research Informing Technology and Service Design

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## ABSTRACT

A common critique is that insights from information behaviour and practises (IBP) research have difficulties to find their way to inform the design of new technologies, systems and services. There is a certain seed of truth of these statements but the situation is much more complex as are the requirements to improve the relevance of empirical observations of information activities for design and development. This panel enquires into how different approaches to IBP research can inform technology and service development in different ways, how to support interdisciplinary dialogue between IBP and systems and service design, and what novel insights from the state-of-the-art of IBP research can be drawn to support technology and service development.

## KEYWORDS

information behaviour; systems design; information service design; development; information practises

## ASIS&T THESAURUS

Information behaviour; computer systems; information industry

## INTRODUCTION

Several information science and technology researchers have criticised a posited disconnect between IBP literature and the development of information technologies and information services. There is no doubt that not all the insights from decades of meticulous studies of information activities have found their way to inform the design of new technologies, systems and services. A part of the problem can undoubtedly be traced back to a lack of communication between the two fields of inquiry and practise. To a degree, IBP research can also be criticised of being unnecessarily vague about the practical implications of its main findings. However, even if the

exchange between the two communities could have been livelier, there are many examples of IBP researchers and technology and service developers working together, and fresh insights from the first mentioned field with prospects of informing the latter. Depending on the type and direction of IBP research, the insights can be different and applicable in distinct manner. There are also differences in technology and service design approaches, systems, services, their contexts and situations of design and use that entails different approaches to implement these recommendations.

This panel enquires into the intriguing nexus of IBP research and technology and service development to highlight 1) how different approaches to IBP research can inform technology and service development in different ways, 2) what novel insights from the state-of-the-art of IBP research can be drawn to support technology and service development, and 3) how to facilitate effective interdisciplinary communication for translating findings from IBP research to inform information systems and service design? The panellists represent information science researchers who have conducted empirical research on IBP in diverse contexts ranging from healthcare to archaeology and aerospace industry, and worked towards technology and service design as a part of their research work.

The relevance of discussing the links between IBP research and technology and service design relates to the long-established but still largely unresolved question of how to develop information technologies and services that match with the preferences and behaviours of their intended users. At the same time, as it has become increasingly apparent that the traditional focus on individuals and their use of specific systems and services in isolation is not enough, a more holistic understanding of their information landscapes and practises could provide novel insights into understanding systems and services in their lifeworld-wide context of use (Huvila & Ahmad, 2018). With its focus on information and people beyond specific (types) of technologies, IBP research has a potential to complement technology-oriented human-computer interaction (HCI) and technology studies research. Finally, it is apparent that the divergence of

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epistemologies within IBP research and in development and design research mean that the findings of IBP studies need to be properly translated into the context they are expected to be informing.

### **INFORMATION BEHAVIOUR AND TECHNOLOGY USE**

The critique of IBP research drifting away from systems and service design has been raised on several occasions (e.g. Fisher & Julien, 2009; Haider & Sundin, 2019; Ingwersen & Järvelin, 2005; Julien & O'Brien, 2014; Julien, Pecoskie, & Reed, 2011). The gap becomes especially apparent if compared to neighbouring fields such as human-computer interaction and information design with partly overlapping interests with IBP research and a very explicit interest in design.

In spite of the critique, there are exceptions to this tendency. Kuhlthau's seminal work on information seeking has had a broad and deep impact on library practises (Kuhlthau, 2016; Sonnenwald, 2016) and, for instance, research on (information) searching is constantly influencing the development of search systems (Järvelin & Wilson, 2003; White, 2016). Greifeneder (2014) notes that participatory design is increasing in popularity as a research method and remarks further that a partial reason to the seeming dearth of studies is that work-related information use, creation, saving and learning is not always included in surveys of the field. There are projects where the explicit focus is on eliciting and translating findings from IBP research to inform design and development (e.g. Huvila, Daniels, Cajander, & Åhlfeldt, 2016; Lin & Hertzum, 2018) and work that resides in the interface between systems design and IBP research (e.g. Blandford & Attfield, 2010; Dillon, 2016; Fidel & Pejtersen, 2004; Sonnenwald & Lievrouw, 1997). Further examples of systems and service design oriented IBP research include Huvila's and colleagues work in the context of archaeology (Huvila, 2008, 2012, 2018), Björneborn's work on library space (Björneborn, 2010), Du and colleagues' work on marketing professionals' information seeking in the workplace (Du, 2014; Du, Liu, Zhu, & Chen, 2013), and several recent studies related to health information and e-health technology with an aim of understanding IBP as a premise of systems use and design (e.g. Eriksson-Backa, Hirvonen, Enwald, & Huvila, 2018; Huvila et al., 2016; Moll et al., 2018; Nguyen, Eriksson-Backa, & Enwald, 2018) and broader user group specific health information acquisition patterns both in the wild (e.g. Lee, 2018; Oh & Kim, 2014; Oh, Zhang, & Park, 2016; Yoon, Huang, & Kim, 2017; Zimmerman, 2018) and in specific systems (e.g. Huvila et al., 2018; Rexhepi, Åhlfeldt, Cajander, & Huvila, 2015; Sabelli, 2014). Others have focused on providing more knowledge on individuals' health information related capabilities and their opinions towards technology (e.g., Enwald, Hirvonen, Kangas, & Keränen, 2018) and for instance on specific factors and their influence on information use and design (e.g. time in Tana, Kettunen, Eirola, & Paakkonen, 2018, gender in Rowley, Johnson, & Sbaffi, 2017 or diversity for Dali & Caidi, 2017).

In spite of the evidence of both more and less successful application of insights from IBP research in systems and service design, it is apparent that the exchange between the two fields could be livelier. There is no doubt that many different factors contribute to the present state of affairs. It is not a question of a lack of potential for mutual interests and potential (e.g. Beyene & Byström, 2017; Haider & Sundin, 2019) but something else. Many influential studies are focused on very specific contexts or activities (like information seeking processes in particular situations or searching specific types of information). The evidence of information activities is not always representative of larger populations due to diverse methodological shortcomings in research designs but possibly also because of the complexity of human experience as a whole (O'Brien, Dickinson, & Askin, 2017). The diversity of theoretical perspectives in IBP research (Haider & Sundin, 2019) does also mean that it can be difficult to extend insights from one study to another. Further, researchers in this particular field might not always be very good at communicating their findings in a way that is useful in systems and service design and all developers are not necessarily motivated to embrace them. Finally, especially the impact of the branch of IBP research that aims at understanding rather than explaining information activities (Haider & Sundin, 2019) can be difficult to trace and appreciate when it is conducted in context and close collaboration with practitioners.

### **LAYOUT OF THE PANEL**

The panel starts with a short presentation by the moderator that introduces IBP research and its links to technology and service design underlining the pertinence of the issue in diverse contexts ranging from health to science, politics, engineering and heritage. After the 10 min introduction, all panellists give a 5 min lightning talk of how they have investigated IBP with a specific focus on its theoretical and empirical insights and implications to technology and service design. After the lightning talks, each of the panellists are asked to present a short commentary on their colleagues' presentations with a focus on pointing out commonalities and differences in the approaches and the relationship of their different takes on IBP research and technology and service design. After the commentaries the panellists are asked to give short, 1 min reflections of how they would push the state-of-the-art of IBP research in relation to technology and service design on the basis of their experience. During the final 30 min of the panel, the audience is asked to join the discussion with panellists on IBP research and its relation to technology and service design. The discussion is led by the moderator and facilitated by a set of questions based on the panellists' presentations. The panel closes with an invitation from the moderator to contribute to the discussion started at the panel and a short round of proposals and ideas for future work in the field from the panellists and the audience.

The presentations combine two parallel approaches to engage with technology and service design in the context of IBP

research. All presentations explicate how IBP underpin user needs and preferences related to the availability, use and non-use of systems and services in specific contexts. At the same time, they also engage with individual, socio-cultural, and technico-material issues that obstruct and facilitate addressing users' needs, wants and preferences in the design, development and deployment of systems and services. By bringing these two parallel perspectives together, the panel explicates the disciplinary nexus of how IBP research can inform technology and service design and how it can inform future IBP research. Further, the panel delves into the practical and theoretical implications IBP research in and for technology and service development related research and practise.

## **PANELLISTS AND THEIR CONTRIBUTIONS**

### **Isto Huvila, Uppsala University**

Isto Huvila presents empirical findings of his research on archaeological and archaeology-related information work and practises, and the development of documentation and information management technologies and services in that particular domain. The presentation draws both on his earlier and ongoing empirical research on archaeological information work and information management in archaeology. Huvila shows how a better understanding of the information practises of both information producers and users and taking them holistically into account is a necessary precondition in the development of useful information systems and services. Considering the interdisciplinarity and societal impact of contemporary archaeological research, the implications of the findings discussed in the talk have implications to areas ranging from land development to digital humanities and community heritage.

Professor Huvila holds the chair in information studies at the Department of ALM at Uppsala University in Sweden. His primary areas of research include information and knowledge management, and social and participatory information practises.

### **Heidi Enwald, University of Oulu**

Heidi Enwald presents the viewpoint of tailoring health information and communication in e-health services. She has been working in several multidisciplinary research projects and taken part into planning, design and testing of electronic behaviour change support systems relating, e.g., to improvement of wellness of young men and those in high risk for metabolic syndrome. Health IBP as well as health information literacy are aspects that could provide important information about the users. Furthermore, they can be used as basis for targeting or tailoring health information and communication. Tailoring health communication and services can improve the acceptance and effectiveness of the service and its content.

Enwald works as a university lecturer in Information Studies, the University of Oulu, Oulu, Finland. Her PhD thesis related to tailoring health information and her main research interests

are health IBP, health information literacy, e-health literacy, e-health, health communication and open science.

### **Kristina Eriksson-Backa, Åbo Akademi University**

Kristina Eriksson-Backa presents findings from recent qualitative and quantitative studies concerning IBP related to e-health technology especially amongst older adults in Finland. Group interviews with older adults about their experiences with a national patient-accessible electronic health record gave insights into how this type of service could be developed to meet users' expectations and needs, whereas quantitative data from a survey of online diabetes risk test users showed use of and potential benefits with online self-assessments and similar e-health services. Furthermore, results from a vast national survey carried out amongst a representative sample of older Finnish adults (aged 55-70 years) will add to the knowledge about IBP related to e-health services in general, and deepen the understanding of how to bridge the gap between such services and their users.

Dr. Eriksson-Backa is a university teacher and researcher in Information studies at Åbo Akademi University, Turku, Finland. She holds the title of docent (adjunct professor) in information studies with orientation on health information at the same university. Her main research interests are information about food and health in media, health IBP, health information literacy, and e-health.

### **Ying-Hsang Liu, Australian National University**

Ying-Hsang Liu presents findings and on recent research cooperation with an international company in the aerospace industry. The project was designed to integrate professionals' information seeking research into the design, experimentation and implementation of interactive information retrieval systems in support of specific work/search tasks. Drawing from professionals' information seeking research, interactive information retrieval studies and how HCI theories are re-used in practise, further reflections on different kinds of theories IBP and practise researchers have been developing and possible explanations for a posited disconnect between research and practise will be presented.

Ying-Hsang Liu is affiliated with the Research School of Computer Science, The Australian National University since 2012. He joined the School of Information Studies, Charles Sturt University in Australia after teaching at the Pratt Institute and Rutgers University. His research is concerned with human interactions of emerging technologies, such as modern search engines, with particular emphasis on human capabilities in terms of individual differences.

### **Noora Hirvonen, University of Oulu (Moderator)**

Noora Hirvonen is a postdoctoral researcher at the University of Oulu, Finland. Her research interest focuses on empirical research on people's competencies and practises to acquire, evaluate, and use health information in varying settings and

with different tools. She has experience in interdisciplinary research and has contributed to the design of a novel technological health application with IBP and literacy research.

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