Designing for Collocated Interaction: Absence of Practice vs. Presence of Practice

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ABSTRACT
Our research—on collocated settings and the interactive technologies that support or enable them—has tended to focus on two themes. 1. We examine and design for collocated situations characterized by existing, established practices with and around technology. 2. We explore how novel interactive technologies can be designed for particular collocated situations in which there is an absence of certain practices with interactive technologies.

Author Keywords
Collocated interaction; Design; Practice.

ACM Classification Keywords
H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTEREST AND EXPERIENCE
Our combined experience in this space ranges from the design of systems for collocated interactions in cultural settings such as museums [7], and theme parks [3] on the one hand, and workplace settings such disaster response on the other [4].

A concern with understanding the nature of face-to- face interactions in mobile, but collocated settings is a common concern for us across these settings. We are particularly interested in the social organization and embedding of technology use within these [e.g., 6].

We have jointly organized workshops together with others at ECSCW '13 [5], NordiCHI '14 [9], and CHI '15 (forthcoming) [10], exploring opportunities and challenges for the design and study of interactive experiences, apps and systems that support, augment or enable collocated activities. As a (preliminary) result of this research activity we have synthesized a framework designing mobile collocated experiences, which we are presenting at CSCW '15 [11].

Here, we provide some reflections on our prior experience. Although much of our research is aimed at collocated settings, there are also fundamental differences between the settings that do not necessarily align with common categorical boundaries such as 'workplace', 'culture', 'learning', or 'play' etc. Rather, what we wish to table for discussion in this workshop is our observation that design for collocated situations can be thought of in two ways:

1. **Design in the face of existing collocated practices.** We may be designing to support (or disrupt) existing, established practices.
2. **Design in the absence of collocated practices.** Alternatively we may design entirely new 'experiences' for situations in which existing practices are (apparently) absent [1].

OPEN RESEARCH ISSUES
Reflecting on our experiences of the varied challenges when designing for existing or absent practices, we raise a cluster of issues.

Why is it that despite decades of CSCW research and development to create 'professional coordination tools', these professionals end up using a loose assembly of off-the-shelf hardware and software, largely lacking explicit support for collaborative workflows? More importantly, should we—the CSCW community—care;

should we even attempt to provide technological support? Surely, we value the established, 'organically grown' work practices professionals are engaged in; perhaps they are best spared the feeble attempts to be 'improved' by technologists?

We—the authors—think the CSCW community should care. CSCW provides us with the research methods to study existing practice (e.g., design ethnography [2]), inform design requirements, and build interactive prototypes that don't shy away from complex hybrid workflows, such as the StripTIC system that augments pen-and-paper based collaborative work in air traffic control [8] to digitally enhance existing work practice.

On the other hand, we encounter a different set of problems when attempting to design an entire experience to enhance collocated interaction, for example during cultural visiting [3,7]. Arguably the designer has considerable creative freedom, for example in designing an app to support photo sharing and interactive souvenir generation to enhance the visiting experience [3]. We suggest that the challenges a designer faces in such settings are rather around constraining the freedom in meaningful ways to create a usable design framework aligned with the goals of the designer, such as to create an experience that enhances, rather than hinders face-to-face interaction, mutuality and togetherness. To that end, we have provided a design framework [11].

In line with our opening positioning we wish to bring the following research challenges to the table for potential discussion in this workshop.

Designing for presence of practice

- How do we effectively design for complex collocated settings such as the disaster response command-and-control room, characterized by a interdependent work practices across hybrid (digital/physical) resources?
- What are the processes through which we involve members in the design, and/or how do we adapt them to the specific organization and setting?
- What set of research methods and tools 'out there' already support this job well (e.g., fieldwork, interaction and conversation analysis), and where are the 'holes' in the literature?

Designing for absence of practice

- How do we support designing for collocated settings that (apparently) lack a certain kind of practice that the designer wishes to introduce, e.g., collaborative souvenir creation?
- What approaches and prior work does already exist, or may be appropriated to scaffold the design process in meaningful ways (our framework is a step in this direction [11]), what is lacking from the literature?
- In doing the prototyping of technologies to support collocated interaction, are there specific technologies/techniques that lend themselves well for the purpose (e.g., proxemics interactions); are we lacking key enabling technologies?

WORKSHOP GOALS

For our own participation we have the following goals:

- Meet designers and researchers interested and experienced in collocated interaction and make new contacts for future collaborations;
- Contribute fieldwork data and preliminary findings from collocated work settings, receive feedback;
- Present a brief overview of our framework for designing experiences for mobile collocated interaction in order to receive feedback;
- Learn about related research and gain inspiration for future avenues to further our research.

BIOS

Joel Fischer is a Research Fellow at the Mixed Reality Lab and Assistant Professor at the School of Computer Science at the University of Nottingham. His research ranges from studying users, mainly through ethnography 'in the wild', and designing interactive UbiComp systems and mobile experiences. His research interests in CSCW focus on the use of technologies in face-to-face settings, and have cut across domains from interruption management, to co-design with non- profit organizations in energy, and disaster response.

Stuart Reeves is EPSRC Senior Research Fellow in Computer Science at the University of Nottingham, UK. He explores the design of interactive systems, and has primarily conducted research on interactions with technology in public settings, particularly in cultural and performance spaces. As a recently appointed EPSRC fellow he is investigating the relationships between theory and practice in HCI. He is also author of the book *Designing Interfaces in Public Settings*.

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