Chapter 27
Enhancing Self-Reflection With Wearable Sensors Workshop: A Commentary on the ACM MobileHCI 2014 Workshop

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ABSTRACT

On 23rd September 2014 the authors organised a workshop on self-reflection tools and wearable sensors as part of the ACM MobileHCI 2014 Conference in Toronto, Canada. The aim of the workshop was to bring together professionals from different backgrounds to discuss the current adoption of such methodological tools, their challenges and future trends. Examples of own individuals' work were presented where such methodologies had been employed. Hands-on activities enabled us to fine- tune our understanding of those methodologies and unpack new potentials regarding their advantages and limitations. The workshop argued that the potential synthesis of such methodologies in collecting data will contribute to a new form of 'Big Data on-the-go' while introducing ethical, control and management challenges. The workshop revealed interesting opportunities arising from the synergies of sensors and reflection tools with a wide range of applications. Finally, the workshop offered opportunities for experimenting with sensors and reflection tools on site.

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THE WORKSHOP: WEARABLE SENSORS AND SELF-REFLECTION TOOLS

The advances of wearable technology have opened up new horizons for collecting and sensing data. While data collection methods necessitated before –most of the times- static acquisition of data, wearable technology provides a new layer of ubiquity in peoples' everyday lives. The ubiquitous nature of this data has transformed human interactions with their social, cognitive and physical environments, posing new dynamics into how humans *feel* and *sense* for things, situations and other individuals. On the other hand, self-reflection tools such as diaries have long been utilised for the *in situ* and *longitudinal* collection of personal and non-personal data offering advantages in collecting data *as it occurs*. More recently, mobile diaries have been developed to provide a wider synthesis of data collection allowing different modes of data to be collected at the same time (e.g. audio, video, text and photographic) and providing a more holistic viewpoint of how people act, react and interact with their environment. Furthermore, while it can be argued that sensory data can help to generate *objective* data, self-reflection tools focus mainly in collecting *subjective* data (i.e. personal viewpoints, interpretations of feelings of individuals). Considering the immersiveness and pervasiveness that such methodological tools offer, this workshop aimed to understand the current state-of-art of those technologies and their context of use. It also aimed to provide a round table to discuss what opportunities and challenges arise from a synthesis of such methodologies. The discussions and activities within this workshop intended to feedback knowledge into the MobileHCI, HCI, Cognition and Knowledge Management communities to inform the specifications, needs and design of new innovative mobile technologies.

The employment of wearable sensors and self-reflection tools within research is not new. Indeed, such methodologies have been employed before across different settings. For example, mobile diaries and some sensory data has been employed in collecting data within cultural sites (Kefalidou, Georgiadis, Coles & Anand, 2014; Cranwell, Sun, Golightly, Bedwell, Kefalidou & Sharples, 2015), walking as experiential travelling (Dix, 2013), exploring serendipity (Eagle & Pentland, 2004; Sun, Sharples & Makri, 2011), supporting learning within classroom settings (Orford & Kefalidou, 2013), monitoring and reflecting on daily spending (Skatova et al., 2013), identifying mobile information needs (Sohn, Li, Griswold & Hollan, 2008) and personal footprints (Gouveia & Karapanos, 2013) to name a few.

Identifying how humans interact with sensors and self-reflection tools, how they share information and experiences, how these data can enrich our Mobile HCI knowledge base and can inform the design and appropriate evaluation of new innovative tools is vital within the HCI community (Li, Dey & Forlizzi, 2011).

WORKSHOP FORMAT

Industry-based, research and academic-based individuals joined us for the workshop aiming to openly discuss issues surrounding these methodologies, new potentials and understandings. At the beginning of the session and prior to presentations, participants had the opportunity to display and introduce sensory and diaries toolkits that they brought with them. Examples of technology kits that were brought include: wearable cameras (e.g. Autographer and Narrative clip), Android Mobile Diary application (on Nexus S), activity sensors (e.g. Jawbone) and Lego-like programmable hardware technology (e.g. littleBits (*littlebits.cc/* - Figure 1). Bluetooth beacons had already been installed in the area to further facilitate the forthcoming hands-on activities within the workshop.