Displacing use: Exploring alternative relationships in a human-centred design process

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This paper critically discusses the concept of use in design, suggesting that relevant relationships other than use are sometimes obscured by the user-centredness of design processes. We present a design case from the medical device domain that displaced the concept of use from the centre of a human-centred design process. We identified alternative design-relevant relationships between people and devices that are not specifically tied to the functions/uses of the devices, e.g. relationships between the healthcare professional and the device, between doctors and patients, and between patients and their own medical conditions. Displacing use can be a valuable strategy for design, revealing some of the contextual conditions that influence an artefact's use, and broadening the space of alternatives explored in design.

T his paper presents a case from an ethnographically-informed design process in which the concepts of *use* and the *user* were intentionally displaced in order to investigate the design relevance of alternative person–product relations. The case concerns a participatory innovation project run in collaboration with two medical device companies who were interested in better understanding and improving the uptake of their devices by patients. We begin the paper by critically revisiting the concept of use in design. In subsequent sections we present the design project case, identify the non-use relationships that emerged as relevant for design, and outline several design strategies suited to addressing this design space. Our concluding discussion treats the value and limitation of these approaches in application to design more generally.

1 Reflections on the concepts of use and the user in design

In design, the concept of the *user* of products and systems has a considerable legacy (e.g., Grudin, 1993; Krippendorff, 2006; Luff, Hindmarsh, & Heath, 2000; Marti & Bannon, 2009; Norman & Draper, 1986; Tuomi, 2005;

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Wasson, 2000). It is also a concept that has undergone significant evolution over the decades since it was first introduced. The notion of 'user-centred design', a phrase originating from computer systems development, was a valuable rallying cry for software designers to consider aspects such as workflow and the ergonomics of use in the conception and deployment of software systems (Schneider, Arble, Olson, & Wolff, 1980). It was also a critique of the then-current fashion to model the human beings who used computer systems as rational problem solvers who were, at base, information processing systems themselves (Kling, 1973). In these early formulations, an emphasis on the user of designed systems was a means of bringing neglected aspects of the contexts of system use into the picture as having central relevance for the successful design of systems. The success of these systems was conceived in terms of utilitarian ideals such as 'maximal efficiency, productivity and job satisfaction' (Schneider et al., 1980, p. 116), or in terms of how well systems addressed what would later become known as *the requirements problem*, namely how to construct a system that actually met the needs of the people who would end up working with it (Kling, 1977). The users in view here were synonymous with *workers*, and contexts of use were understood in terms of workplaces and divisions of labour. The emergence of *user centred design* as an identifiable approach to systems design in the US in the 1970s was roughly coincident with democratic design developments in the UK, e.g. the Design Research Society's 1971 conference on design participation (Cross, 1972) and Mumford's (1983) 'sociotechnical' approach to designing with users, and also in Scandinavia, where a 'work-oriented' approach to design had emerged out of pioneering collaborations between computer scientists and workers' unions (see e.g. Ehn, 1988; Floyd, Mehl, Resin, Schmidt, & Wolf, 1989; Kyng & Mathiassen, 1979).

Although it was with respect to the design of computer systems in work settings that 'users' became a standard term of reference, other design disciplines naturally had their own terms for people who stood in a very similar relation to what was being designed, e.g. industrial design's focus on the 'consumer', or architecture's idea of the 'occupant' of a structure. However, 'user' is the term that has gradually infiltrated disciplines outside of systems design, having become the case as consumer products from coffee machines to automobiles are increasingly embedded with microprocessors and user interfaces, and hybrid disciplines (such as interaction design and service design) have emerged at the intersections of new technologies, practices of consumption and innovative business models. Concurrent with these developments, 'user-centred design' has become understood as a valuable approach to design with broad applicability across design domains. Yet such developments have also necessitated an evolution in the concept of the user. The shift from work settings and software interfaces to domestic environments and consumer electronics, for instance, significantly changed the very idea of 'use' in a number of important respects. For one, the corrective changed. For early advocates such as Kling