Chapter 14
Considering Worth and Human Values in the Design of Digital Public Displays

Nuno Otero
University of Minho, Portugal

Rui José
University of Minho, Portugal

ABSTRACT
The development and design of computational artifacts and their current widespread use in diverse contexts needs to take into account end-users needs, likes/dislikes and broader societal issues including human values. However, the fast pace of technological developments highlights that the process of defining the computational artifacts not only needs to understand the user but also consider engineers and designers’ creativity. Taking into account these issues, we have been exploring the adoption of the Worth-Centred Design (WCD) framework, proposed by Gilbert Cockton, to guide our development efforts regarding digital public displays. This chapter presents our insights as a design team regarding the use of the WCD framework and discusses our current efforts to extend the adoption of the framework. Finally, future steps are considered, and will focus on enriching our understanding concerning potential places for digital displays, stakeholders’ views, encouraging open participation and co-creation.

INTRODUCTION
The creation of novel digital artifacts, including pervasive and ubiquitous computational artifacts, for diverse contexts of utilization and fruition is a process that should go far beyond the definition of its form and functionality. For example, it should take into account the way that the artifact is going to fit into the larger context of daily life and into the eco-system of already existing services and artifacts. In fact, in addition to the technological challenges that are involved, designing digital artifacts requires a thorough understanding of the social milieu that the system is meant to integrate, a clear view of the respective value proposition and the engendered users’ experiences (Sellen, Rogers, Harper, & Rodden, 2009).

DOI: 10.4018/978-1-60960-487-5.ch014
Reflections on human values and the development of digital artifacts are not a new theme. Computers and other digital technologies have been raising important concerns regarding ethical principles (see, for example, Johnson, 2004). However, the mediation of human actions by these new types of technologies pose distinct challenges and the field of computer ethics is active in defining ethical boundaries and trying to inform policy vacuums (Johnson, 2004): “Computer technology instruments human action in ways that turn very simple movements into very powerful actions” (pag. 76). As a simple example, consider the case of cyber-bullying in schools and its consequences in terms of publicizing, social identities and images of the self.

Sellen et al. (2009) consider that: “...values are not something that can be catalogued like books in a library but are bound to each other in complex weaves that when tugged in one place, pull values elsewhere out of place.” (pag. 61). Furthermore, understanding human values means not only taking the perspective of the individual but also looking at other levels of social organization, like groups, Institutions or even societies. Distinct agents at specific points might particularly cherish different human values in time and space. The design of interactions and technologies, in this sense, needs to be aware of the different balances and make choices (Sellen et al., 2009). Although Sellen et al. (2009) propose a new stage of the design cycle especially concerned with the referred to issues, it seems that the field is still quite open regarding how to proceed in terms of methodologies and methods.

In their seminal work, Friedman et al. (Friedman, 1996; Friedman, Kahn Jr, & Borning, 2006; Friedman & Kahn Jr, 2003) have proposed a framework which they termed Value Sensitive Design that considers three distinct aspects/investigations that should inform design:

- Conceptual investigations intend to understand which values are at stake within a certain project from a philosophical stance. It involves reflecting on stakeholders views, assumptions about networks of values and possible trade-offs.
- Empirical investigations focus on how the conceptual issues uncovered are actually instantiated in real contexts. Researchers should formulate particular empirical questions regarding usage and perceived valuation by stakeholders in order to reach understanding based on real world data.
- Technical investigations try to uncover how specific systems’ functionalities are tied to particular values and assess support or hindrance.

According to Friedman et al. (2006), the framework “...can help researchers uncover the multiplicity of and potential conflicts among human values implicated in technological implementations.” (pag. 356). They identify eight features of their framework that can be seen as guiding principles for design. In a nutshell, these eight features cover: the importance of considering values early in the design process, highlight the need to be open to a wide set of potential values, consider the need to distinguish usability issues from value issues, takes an interactional perspective regarding the relations between features of the technologies and their use by people, and considers the psychological proposition that certain values are universally held. Their Value Sensitive Design framework also offers practical advice on how to proceed with such investigations and has been applied in numerous projects (see, for example, Friedman, Smith, Kahn, Consolvo, & Selawski, 2006; Miller, Friedman, & Jancke, 2007). More recently, Nathan et al. (2008) utilized the Value Sensitive Design framework in conjunction with inspiring ideas from urban planning and design noir to foster reflection regarding systemic effects (large scale, long term) on persons and society of some digital artifacts appropriations. They extended the traditional use of scenarios to include