Chapter 2
Ethical Design of Social Technology:
User Engagement and Attentional Demands

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ABSTRACT

Social technology has become ubiquitous in everyday life. Developers of social technologies seek design elements and new technologies, such as machine learning algorithms, aimed at increasing user engagement. Increased user engagement with products or services is sought after by both companies, which benefit from increased sales and customers who desire technology which they are motivated to use. However, increased user engagement also results in increased demand on user attention. High demand on user attention results in problems for social technology users, including decreased task performance, decrements in working memory, increased anxiety, and more. Developers of social technology should take these negative effects on users into account when implementing new features into their products or services. This chapter proposes a framework for the ethical design of social technology, with a specific emphasis on the balance between user engagement and attentional demands on the user.

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INTRODUCTION

Over the past two decades, social technologies, such as social networks, blogs, and smartphones, have permeated users' daily lives, altering consumer behavior, ways of living, and even cultural practices. Given that social technology design influences the behavior of not just the user, but also society at large (Bennett & Segerberg, 2012; De Reuver et al., 2016; Omamo et al., 2020), thorough consideration must be given to how ethical values are instilled in the technology itself by decision-makers, including human factors professionals, who design, develop, implement, and evaluate the products. Values of ethical importance differ from other values in that they are strongly focused on society and the user, and that they deal specifically with issues such as fairness, well-being, autonomy, virtue, trust, and justice (Friedman & Kahn, 2002). However, the ethical design of social technology is complicated by the social and technological environment, or sociotechnical system, in which it is situated. Simply put, ethical design of social technology is encumbered as a result of all the devices, services, and other technology that is often underlying the end user product. Behind this technology are equally complicated relationships among the technology, social forces, individual agency, corporate preferences, and more. Furthermore, given the recent advances in machine learning, algorithms may be self-modified or self-advanced in ways that are unknown even to the developers who designed the systems. This implies that the effects of these systems on the end user may not even be clear to developers unless some way to ensure system transparency is established. These challenges should be approached in deliberate and careful ways to ensure that a framework of the ethical design of social technology is in place as designers move forward with developing more advanced systems.

Social technology is a term that can be defined in multiple ways. In its primary sense, social technologies are those that help users connect with and manage a relationship network of other users of the same or associated technologies (Botin et al., 2017). Social networks, e-mail, and smartphones all provide the ability for us to interact with others or manage their contact information. More recently, social technology has been broadened to encompass technology that serves as a social actor in itself and with which we can interact in a social manner, such as virtual agents (Alexa, Siri, etc.) or social robots (Breazeal, 2002; Pereira et al., 2014). Social technologies leverage individuals' sociality motivation (Baumeister & Leary, 1995; Ryan & Deci, 2000) and social relationships to increase user engagement.

As a result of a push to increase user engagement through various methods, such as interruptive notifications, the current generation of social technologies present considerable risk to our ability to regulate our attention (e.g., Aranda & Baig, 2018; Yang & Gong, 2021). Machine learning algorithms in autonomous systems, such as those that help social media sites increase user engagement, are designed by

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