Chapter 18
Mindfulness and HCI

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ABSTRACT

Mindfulness is constantly increasing in popularity, having demonstrated benefits for psychological health and cognitive performance. Not only current psychotherapies have integrated mindfulness, but also digital technology for the general public such as mobile apps and games strive to incorporate mindfulness either explicitly (as mindfulness solutions) or implicitly (by training factors associated with mindfulness). The goal of this chapter is to clarify how mindfulness can be used in the context of HCI and provide practical insights for researchers and developers on how to create positive digital experiences. After a brief introduction of the intersection between those two fields, this chapter focuses on the challenge of operationalizing mindfulness and how it can be measured in HCI. Two review studies are presented, along with design recommendations, which are then applied in a case study. Results and implications are discussed.

INTRODUCTION

The benefits of technological ubiquity come with consequences. The availability of technological pastimes (such as social media) increases distraction, hence mindlessness (unawareness) about one’s own experiences and surroundings. This often results in stress and decreased physical (Campisi et al., 2012) and psychological wellbeing (Kalpidou, Costin, & Morris, 2011). Studies suggest that media consumption and multi-tasking are associated with lower levels of personal contentment and academic achievement (Rideout, Foehr, & Roberts, 2010), and impair learning and attention, especially for children (Wallis, 2010). Furthermore, multi-tasking in the form of frequent social media interactions decreases productivity (Mark, Iqbal, Czerwinski, & Johns, 2015), and the interruptions caused by sending and receiving emails (from anywhere at any time) causes stress (Barley, Meyerson, & Grodal, 2011). Heavy multi-tasking was also associated with increased susceptibility to distractions (Ophir, Nass, & Wagner, 2009) and thus, reduced mindfulness (i.e. not being in the present moment). More recent studies have included mindfulness as a factor when investigating the effects of social media, finding that mindfulness improves resilience to emotional exhaustion and increases a sense of personal accomplishment, meaning
that people with low levels of mindfulness deal worse with stress and emotional challenges, therefor having a greater risk to develop psychological disorders such as burnout (Charoensukmongkol, 2016; Sriwilai & Charoensukmongkol, 2016).

This research acknowledges that modern life is demanding and views technology as a platform for improving mindfulness and gaining its associated benefits. Searching the dominant app stores (iTunes and Google Play) for mindfulness reveals many hits, which reflects the demand for technology-supported solutions in this area (Mani, Kavanagh, Hides, & Stoyanov, 2015; Plaza, Demarzo, Herrera-Mercadal, & García-Campayo, 2013). Mindfulness exercises are often promoted as do-it-yourself techniques for coping with stress, addressing the greatest concern of young people today (Fildes, Robbins, Cave, Perrens, & Wearing, 2014). There is an interest in mindfulness as a way to “keep in touch with our essence” (Williamson, 2003, p.18). Apart from individual benefits (which are discussed below), mindfulness has a broad, social impact by improving interpersonal relationships (Sahdra, Shaver, & Brown, 2010). Realising its value, companies and institutions offer mindfulness courses to their employees (e.g. Google; Shachtman, 2015) to lower stress, increase productivity (Levy, Wobbrock, Kaszniaik, & Östergren, 2012), and improve the moral and emotional standards of their leaders (Waddock, 2001). On a cultural and societal level, it facilitates the development of cultural intelligence (Thomas, 2006) and ethical values (Gilpin, 2008), which can positively influence a world filled with political tensions and social unrest.

The definition of mindfulness (translated from “sati”) is: a present-moment awareness that is a transformative process (rather than a state) associated with ethical development towards virtues such as patience, harmlessness, compassion, acceptance, equanimity, generosity, courage, loving kindness, and sympathy (Gilpin, 2008; Grossman, 2015). Developing mindfulness is not considered an end in itself, but a way to liberate oneself from all suffering, which corresponds to full enlightenment (Hart, 2011). According to Buddhist teachings, this can be achieved by overcoming the three root causes of suffering (“dukkha”): attachment (causing craving and greed), aversion (causing hatred and aggression), and delusion of the (egoic) self (causing the misbelief of being separate from other beings (Gethin, 1998). Mindfulness is traditionally developed through the systematic practice of calm abiding meditation (Dalai Lama, 2003). In Western culture, mindfulness is growing in popularity as attention and emotion regulation training and as a subject of scientific research. There is no consensus on the conceptual definition and operationalisation of mindfulness, but the unifying theme of most programs and studies is the open and non-judgemental experience of the present (Singh, 2012).

Practising mindfulness refers to training mental focus with a basic orientation characterised by open, non-judgemental perception. Attention is directed towards inner experiences, increasing sensitivity to one’s own perceptions, sensations, and thoughts. Embracing all of these experiences with an accepting and non-judgemental attitude disrupts the process of maladaptive reactivity, which in turn results in improved emotion regulation (Brown et al., 2007; Cahn & Polich, 2006; Kang, Gruber, & Gray, 2013; Leung, Lo, & Lee, 2014; Lutz, Slagter, Dunne, & Davidson, 2008). Mindfulness cultivates an emotion regulation strategy that is characterised by an open (non-avoidant), accepting, and non-judgemental orientation to emotions, which promotes acceptance while diminishing avoidance, suppression, and rumination (Chambers, Gullone, & Allen, 2009). These regulation strategies are trained using an experiential process. In mindfulness meditation, passive (i.e. non-reactive) interaction with emotions is exercised by embracing each experience non-avoidantly and without suppression, while carefully examining and accepting one’s own state of mind without engaging in rumination. This practice increases the ability to delay or suspend (reflexive and habitual) emotional reactions. By becoming more conscious about one’s own state of mind, the ability to respond appropriately to events is improved (Kang et al., 2013).