

Mobile Technostress

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INTRODUCTION

Mobile information and communication technologies (mICTs) refer to portable IT artifacts that include hardware, software and network services (Jarvenpaa & Lang, 2005). Such technologies are most often applied in mobile devices, such as mobile phones, smartphones, personal digital assistant (PDA), laptops, tablet personal computers (Tablet PCs), and pocket PCs (Hung, Chang, & Lin, 2011).

In recent years, individuals, organizations, and society have gained great benefits through the implementation and assimilation of mICTs because of their unique characteristics. For instance, mICTs increase access to information, as well as enhance performance and productivity (Brynjolfsson & Hitt, 2000; Hitt & Brynjolfsson, 1996). Simultaneously, mICTs also bring some unexpected negative consequences, such as mobile technostress (Kuo et al., 2009; Yin, Davison, Bian, Wu, & Liang, 2014; Yu et al., 2009). Mobile technostress can be defined as any type of stress that an individual suffers from as a direct or indirect result of mobile information and communication technologies (mICTs).

OVERVIEW

The term *technostress* was originally coined by Craig Brod in 1984, a leader in the field of technostress research, who defined it in his book *Technostress: the Human Cost of the Computer Revolution* as: "...a modern disease of adaptation caused by an inability to cope with the new computer technologies in a healthy manner. It manifests itself in two distinct and related ways:

in the struggle to accept computer technology and in the more specialized form of over-identification with computer technology" (Brod, 1984). Brod thought one symptom of technostress is anxiety. Anxiety can appear as: irritability, headaches, mental fatigue, depression, nightmares, panic, resistance, and a feeling of helplessness. The anxiety expressed by those experiencing technostress can increase errors in judgment and poor job performance if not dealt with. Outcomes of technostress include decreased job satisfaction, organizational commitment and productivity. According to Brod's views, technostress is considered a psychosomatic illness (Brod, 1984).

Later, the term *technostress* was developed by Michelle Weil and Larry Rosen, who did not consider it a disease but defined it as "*any negative impact on attitudes, thoughts, behaviors, or body physiology that is caused either directly or indirectly by technology*" (Weil & Rosen, 1997). Two major elements—strain and stressor—are applied in this definition. The first part of the definition ("*any negative impact on attitudes, thought, behaviors, or body physiology*") describes the strain, and the second half of the definition ("*that is caused either directly or indirectly by technology*") describes the stressor. Obviously, the concept of technostress proposed by Weil and Rosen has been modified a lot from the aspect of intension and extension. Then the subsequent studies have demonstrated that technostress has negative effects including decreased job satisfaction, organizational commitment and productivity (Ayyagari, Grover, & Purvis, 2011; Ragu-Nathan, Tarafdar, Ragu-Nathan, & Tu, 2008; Tarafdar, Tu, Ragu-Nathan, & Ragu-Nathan, 2007).

With the prevalence of mobile information and communication technologies (mICTs), re-

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cent technostress researchers have transited their interests from stationary ICTs to comprehensive influence of mobile ICTs on individual and organizational outcomes called mobile technostress. Mobile technostress is recognized as “the users of a mobile technology who are familiar with the current operating technology encountering specific stress caused by the characteristics of mobility and/or reachability of the technology or suffering for a long period of time through continual connection with that particular mobile technology” (Hung et al., 2011). Yu et al. (2009) and Kuo et al. (2009) summarized four components that characterize the phenomenon of mobile technostress, i.e., technology, stress, technostress, and mobile technology. They pointed out that individuals will perceive stress while losing control due to use of mobile technologies. Mobile technostress is also labeled by researchers with various terms like: ubiquitous technostress (Hung et al., 2011), mobile computer anxiety (Wang, 2007), negative mobile technology attitudes (Clarke & Furnell, 2005), and mobile aversion (Rettie, 2007). These different names focus on different features of mobile technostress and have appeared in the research literature of interaction between humans and mobile devices. Yu et al. (2009) pointed out that there should be a balance between using and controlling the mobile technology. If a technology user could not gain the balance of controlling mobile technology, the feeling of mobile technostress will rise.

CURRENT SCIENTIFIC KNOWLEDGE IN MOBILE TECHNOLOGICAL STRESS

Component of Mobile Technostress

Monideepa Tarafdar (2007) identified five components of technostress including techno-overload, techno-invasion, techno-insecurity, techno-uncertainty and techno-complexity. Techno-overload refers to situations where users are forced to work faster and longer by using ICTs. Techno-invasion refers to the invasive

effect of ICTs which blur work-life boundaries. Techno-complexity refers to situations where the complexity of ICTs induces users' feeling of inadequate with respect to their computer skills; users are forced to spend time and effort to learn and understand ICTs. Techno-insecurity refers to users' feeling of being threatened about losing their jobs, due to automation from ICTs or others who have a better understanding of ICTs. Techno-uncertainty refers to situations where continuing changes and upgrades of ICTs unsettle users and create uncertainty that users have to constantly learn and educate themselves about new ICTs. The five components of technostress were widely accepted by the subsequent technostress research (Sellberg & Susi, 2014; Walz, 2012; Wang, Shu, & Tu, 2008).

With respect to the components of mobile technostress, some researchers advocate that the traditional five components of technostress are common basis and also suitable for the mobile technostress research (Fox, 2014; Walz, 2012). For example, Fox (2014) studied the impact of smartphones on mobile technostress by an online survey of 143 individuals and found that techno-overload and techno-complexity were the most significant of the five technostress components developed by Tarafdar et al. (2007).

However, other researchers propose different opinions about components of mobile technostress from the traditional technostress based on unique characteristics of mICTs (Basole, 2004; Hung et al., 2011; Yin et al., 2014). For example, Yin and Hu (2014) suggested that there are only two components of mobile technostress including techno-overload and techno-insecurity. Firstly, the ubiquitous nature of mobile technology would push individuals to experience information and communication overload and cumulatively result in a techno-overload as they have to work faster and for longer hours. Thus, techno-overload is the key components of mobile technostress. Secondly, connectivity and accessibility nature of mobile technology would allow individuals to be reached and connected anywhere and

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