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Information and communication technology overload and social networking service fatigue: A stress perspective

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ABSTRACT

In an always connected communication environment, users of social networking services (SNSs) need to pay continuous attention to the overwhelming volume of social demands from SNSs. These increased energy requirements may cause SNS fatigue, which can lead to physical and psychological strain. Using the transactional theory of stress and coping as the overarching theory, this study regards overload (i.e., stressors) as a core determinant of SNS fatigue (i.e., strain) and identifies three dimensions of overload — information overload, communication overload, and system feature overload. It also includes SNS characteristics as the antecedents of overload.

The data used in this study were collected from 201 individuals through online and offline surveys. Our results show that all three dimensions of overload were significant stressors that influence SNS fatigue. Regarding the predictors of overload, the characteristics of the SNS system significantly influenced the features of system overload, while information equivocality positively influences information overload. However, information relevance was not a significant predictor of information overload and information equivocality was not a significant predictor of communication overload.

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1. Introduction

Much has been written about the value of social networking services (SNSs) in the academic literature. Indeed, SNSs provide a new channel for self-expression and connectivity (Jang, Lee, & Kim, 2013; Takahashi, 2010) and promote resilience that helps people successfully adapt to changes (Collin, Rahilly, Richardson, & Third, et al., 2011). Further, SNS users can enhance their social capital such as civic and political participation, social trust, reciprocal relationships, and life satisfaction (Valenzuela, Park, & Kee, 2009). Also, SNSs can provide users with the benefits of psychological wellbeing including improvement in self-esteem and quality of life (Ellison, Steinfield, & Lampe, 2007). Inspired by these values, SNSs have become deeply embedded in our daily lives (Boyd, 2008).

However, there can be unintended consequences from SNS overuse that might not always be apparent. One important consequence is SNS fatigue, which refers to a subjective and self-evaluated feeling of tiredness from SNS usage. The widespread use of SNS produces a perpetual obsession and creates expectations that people are obligated to respond to others' postings in a timely fashion (Hind, 1998). To meet these expectations, people need to pay continuous attention to their SNSs and are exposed to an overwhelming volume of social demands. These increased energy requirements cause SNS fatigue, which can lead to physical and psychological strain. A survey by Gartner Inc. (2011) demonstrated that 31% of survey respondents got tired from SNS and 24% had reduced their SNS usage due to fatigue.

Although SNS fatigue is obviously an important issue, scant studies have systematically investigated SNS fatigue. Among the few studies that have been performed on SNS fatigue, Ravindran, Kuan, Chua, and HoeLian (2014) investigated antecedents (e.g., social dynamics, immersion, content, and platform related factors) and consequences of SNS fatigue (e.g., taking a break, cutting back, or suspending SNS activities). In addition, Coklar and Sahin (2011) analyzed whether the stress level of an SNS user is related to mental fatigue and physical symptoms. While these trailblazing studies have made preliminary steps to better understand SNS fatigue, their focus was mainly on the direct impact of social (e.g., social dynamics, power struggles) and/or technological aspects of SNS (e.g., platform characteristics, technology environment) on SNS

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fatigue, but not on the impact of internal psychological processes causing the fatigue.

Considering that fatigue is a subjective, self-evaluated feeling of tiredness and an outcome of stress, it is pertinent to investigate SNS fatigue from a psychological stress perspective. In the current literature, there is a growing consensus that stress is viewed as a transactional process between an individual and her environment (Edwards, 1991; Lazarus, 1990). The person–environment (P–E) fit model asserts that stress results from an imbalance between demands placed by the environment and an individual's perceived ability to cope with the demands (Lazarus & Folkman, 1984). In other words, the misfit between environmental demands and the person's coping abilities causes overload that is considered an important immediate predictor of strain (Ayyagari, Grover, & Purvis, 2011). However, it is not clear in the extant literature what constitutes "overload" in relation to stress from SNS usage. Further, few studies have looked into SNS characteristics that cause various types of overload. Thus, this study attempts to answer the following unanswered questions:

Research Question 1: What are the dimensions of overload that cause SNS fatigue?
Research Question 2: What SNS characteristics are related to each dimension of overload?

In examining these research questions, this study uses the P–E fit model and the transactional theory of stress and coping (Lazarus, 1966) as reference theories. Our theories view stressors and strain as the core components of the stress process: stressors are environmental demands, and strain is an individual's behavioral and psychological response to the stressors (Cooper, Dewe, & O'Driscoll, 2001). SNS fatigue is a form of strain as an outcome of the stress process (Ragu-Nathan, Tarafdar, Ragu-Nathan, & Tu, 2008). Further, this study identifies three overload factors as stressors: information overload, communication overload, and system feature overload. It also describes which SNS characteristics are antecedents of the overload.

2. Theoretical background

2.1. Person–environment fit model of stress

The P–E fit model provides a framework of stress and has been widely referenced in stress research (Edwards, 1991; Edwards & Cooper, 1990). The P–E fit model asserts that when the equilibrium relationship between an individual and her surrounding environment is broken, it can generate stress and lead to strain (Cooper et al. 2001). The misfit between the person and the environment is based on subjective evaluation. Individuals assess whether demands required by the environment exceed their resources or abilities (Kristof-Brown, Zimmerman, & Johnson, 2005; Lazarus, 1991). Also, when supply attributes provided by the environment are not in accord with individual's interest, values, or preferences, P–E misfit can occur (Edwards, 1996; French, Caplan, & Van Harrison, 1982). In SNS, a gap between a user's abilities and the demands from the SNS environment can exist. The proliferation of information and communication technologies (ICT) has engaged people in a heavy use of SNS in daily life. ICT provides convenience to people and business innovation, but too much use and steep evolution of ICT can put people under stress.

Given the lack of literature on SNS fatigue, existing studies on stress in the context of general ICT can be used as references. These studies have investigated the concept of "technostress" (Sahin & Coklar, 2009; Tarafdar, Tu, Ragu-Nathan, & Ragu-Nathan, 2007). Technostress refers to "stress experienced by individuals due to the

use of ICT" (Ragu-Nathan et al., 2008, p. 418). When ICT offers too complicated and diverse functions, changes rapidly, has a steep learning curve, and/or enables complex multitasking, it can cause a misfit between the person and the ICT environment, thereby leading to an increase in stress (Ragu-Nathan et al., 2008). For example, Ayyagari et al. (2011), in a study on technostress, claimed that an individual's perceived gaps between personal abilities and ICT attributes (or demand placed by ICT) are important causes of stress in a work setting. The P–E fit model of stress has been applied primarily in an organizational work environment so far (Edwards & Cooper, 1990; Eulberg, Weekley, & Bhagat, 1988; Heo & Cheon, 2009). The study herein applies the P–E fit model of stress to the SNS environment.

2.2. Transactional theory of stress and coping: stressors and strain

Scholars in social psychology have adopted the transactional theory of stress and coping (TTSC) to understand the causal relationships between stress factors and outcomes in the context of organizational and occupational environments (Barley, Meyerson, & Grodal, 2011; Cooper et al., 2001; Kahn & Byosiere, 1992; Sparks, Faragher, & Cooper, 2001). TTSC incorporates the concepts of P–E fit as the underlying theory (Edwards & Cooper, 1990). For example, McGrath (1976), in a study on the transaction-based approach of stress, explained the term "under stress" as "a state experienced by an individual when there is an environmental situation that is perceived as presenting a demand which threatens to exceed the person's capabilities and resources for meeting it" (p. 1351).

The transaction-based approach explains the phenomenon of stress as a combinative interaction (or transaction) of "a stimulating condition" and "the individual's response to it" (Ragu-Nathan et al., 2008, p. 419). That is, *stress* is a transactional process in which *stressors* are the stimuli that encounter an individual and *strain* is the individual's response to the stressors (Cooper et al., 2001). *Stressors* are demands, conditions, events, or situations in the environment that can generate stress (Ragu-Nathan et al., 2008). Extant studies on technostress of an ICT workforce identify overload (work overload) as a representative stressor (Karr-Wisniewski & Lu, 2010). Overload is a situation where ICT forces people to work much faster and longer than their capabilities and arouses increased demands on individuals who use ICT (Moore, 2000). Meanwhile, *strain* can be considered a negative outcome of stress. In SNS, strain can take the form of exhaustion, discomfort, dissatisfaction, and unfriendly attitudes toward ICT use (Fuglseth & Sorebo, 2014; Salanova, Llorens, & Cifre, 2013). This study adopts TTSC as the overarching theory to understand SNS fatigue.

2.3. Overload in SNSs

According to previous studies on excessive technology use, overload is a core factor that results in negative consequences from the use of ICT (Ahuja, Chudoba, Kacmar, McKnight, & George, 2007; Moore, 2000). Misra and Stokols (2011) noted that advanced ICT tends to burden people behaviorally and psychologically. Specifically, Karr-Wisniewski and Lu (2010) explained that "technology use, once exceeding the optimum level, can actually incur negative outcomes (a curvilinear relationship)" (p. 1062). The proliferation of Internet and SNS introduces new types of overload, including too much information, involuntary extensions of social networking, and rapid changes in technological features of SNS. In SNS, the energy requirements necessary to deal with these overloads can be associated with fatigue (Ravindran et al., 2014).

Meanwhile, the meaning of overload can be different depending on the research context. Karr-Wisniewski and Lu (2010), in a study