

# Using IT Mindfulness to Mitigate the Negative Consequences of Technostress

Full Paper

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## Abstract

Research in the IS field has been focusing on investigating the adverse effects of ICT usage such as technostress. Nevertheless, few studies have investigated mechanisms for the alleviation of this phenomenon. This study contributes to the technostress literature by adopting a mindfulness perspective that has not been investigated before. In this paper, we aim to explore the role of IT mindfulness as a buffer to technostress stressors as well as a mechanism that can mitigate the negative consequences arising from extended ICT usage within organizational settings. By following a survey based approach and exploring a sample of 440 working individuals, our SEM analysis revealed that IT mindfulness constitutes a potential further mechanism that can effectively reduce technostress conditions, enhance user satisfaction while utilizing ICT's for work tasks and improve task performance. Further research is proposed into expanding the proposed model, exploring the influence of IT mindfulness on additional organizational outcomes.

## Keywords

IT Mindfulness, Technostress, stressors, ICT, organizations

## Introduction

Information Technology (IT) has been vastly characterized in the academic literature as a double edged sword (Liang and Xue 2009) as it can offer considerable benefits but also cause negative consequences. The proliferation of Information Communication Technologies (ICT) within organizations has led to tremendous improvements in their performance as well as their efficiency but those advances have come with costs. Recently, researchers have shown an increased interest on the negative aspects of ICT usage and especially on the stress caused by ICT's, called Technostress. Technostress refers to the stress experienced by individuals in organizations due to the extended use of ICT's. Evidence shows that symptoms of technostress on individuals range from fatigue and loss of motivation to inability to concentrate, dissatisfaction at work and reduced productivity (Ragu-Nathan *et al.* 2008) all of which are translated into huge monetary costs for organizations. It is estimated that workplace stress costs more than 300 billion dollars every year to US businesses due to decreased employee productivity, absenteeism, turnover and insurance costs (American Psychological Association 2010). As a result, it becomes apparent that technostress has a tremendous impact on business performance and overall success of organizations and measures need to be taken in order to mitigate this phenomenon.

Previous studies have suggested that organizational mechanisms such as literacy facilitation, technical support and involvement facilitation can reduce the impact of technostress on individuals (Ragu-Nathan *et al.* 2008; Tarafdar *et al.* 2010). These mechanisms, or else called technostress inhibitors, have become the main focus of extant studies in IS literature while there is a surprising paucity of research exploring further means that could alleviate the adverse aftereffects of technostress. Current research has suggested that mindfulness can act as a potential mechanism to alleviate workplace stress (MAPPG 2015). Mindfulness is described as a 'state of conscious awareness in which the individual is implicitly aware of the context and content of information' (Langer 1992, p. 289). Evidence has shown that mindfulness

practices can offer great benefits to individuals as well to organizations and can effectively combat work related stress (MAPPG 2015). According to the study of Meischke *et al.* (2015), mindfulness may alleviate the harmful effects of stress within occupational settings, considering technostress as one of the many sources of stress. To our knowledge, this is the only study that considers the constructs of mindfulness and technostress together. To address this issue, in this study we aim to evaluate the effects of mindfulness on Technostress in the IT context and more specifically we propose a theoretical model that suggests IT mindfulness as mechanism that can act as a buffer to the exposure of technostress stressors and on the outcome strain, alleviate the adverse effects arising from extended ICT usage within occupational settings and ultimately contribute to employee well-being. As a result, the research question of the present study can be stated as: *What are the effects of IT mindfulness on ICT induced stress (technostress) within organizational settings?*

In the remainder of the present paper, a brief literature review of the concepts of Technostress and Mindfulness will be provided in order to present in the following section the theoretical foundation that was used for the development of our proposed Hypotheses. Next, a detailed description of our methodology follows as well as the data analysis and results that emerged. This paper is concluded with the discussion section where we discuss our findings and conclusions along with the results of extant literature and offer some suggestions for future research.

## **Theoretical Background**

### ***Technostress***

Organizational stress has been a central area of interest in the academic literature for decades, since it constitutes an important aspect of business performance and overall success. Stress can disrupt the working environment and cause negative consequences in organizations that manifest in direct costs such as poor individual performance, health problems and high absenteeism as well as in indirect costs arising from poor decision making and communication problems (DeFrank 2012). Emerging academic research in the IS field is focusing on investigating the areas around the adverse effects of ICT usage (Tarafdar *et al.* 2013). Recently, a significant volume of published studies has been focusing on the stress caused by ICT's in the work environment or else called technostress. Technostress was defined for the first time in 1984 by clinical psychologist Craig Brod (1984, p. 16) as 'a modern disease of adaptation caused by an inability to cope with new computer technologies in a healthy manner'. In other words, it can be described as 'any negative impact on attitudes, thoughts, behaviors or psychology caused directly or indirectly by technology' (Weil and Rosen 1997, p. 36).

In today's organizational fully computerized work environments, individuals are obliged to work extensively with ICT's, depend highly on them and constantly adapt to new software and hardware updates. This rapid advancement of technology creates a significant difference between the knowledge that the employee currently possesses and the one needed by the ICT in use (Ragu-Nathan *et al.* 2008). Furthermore, current ICT's create a sense of constant connectivity to individuals by extending the conventional work day through several ICT applications such as Internet, emails, mobile phones and instant messaging (Tarafdar *et al.* 2015). In addition, multitasking, IT interruptions and information overload caused by the constant usage of ICT's within the workplace, introduce a new way of working demanding a higher load of information to be dealt within a shorter amount of time (Ragu-Nathan *et al.* 2008). Throughout the previously mentioned situations, individuals become overwhelmed as well as threatened by technology, consequently feeling unable to cope with organizational and ICT requirements and exhibit feelings of stress and more specifically technostress (Tarafdar *et al.* 2007). Overall, technostress is caused by the constant advancement of ICT's in the organizational workplace, forcing individuals to continuously adapt to the changing physical, social, cognitive requirements impeded by ICT's use (Tarafdar *et al.* 2007).

In the IS domain, a considerable amount of research has been published on the concept of technostress (Tarafdar *et al.* 2013). More specifically, the study of Tarafdar *et al.* (2007) constitutes the first paper that conceptualizes and empirically shapes the dimensions of technostress. Later, Ragu-Nathan *et al.* (2008) empirically validate the factors that create technostress namely technostress creators and constitute in: techno overload, techno invasion, techno insecurity, techno complexity and techno uncertainty. Techno overload describes situations where ICT's force individuals to work faster and longer. Techno invasion

refers to situations where the individual feels “always connected”, never free of technology and can be reached anywhere and anytime due to ICT’s such as mobile phones and emails. Techno insecurity describes situations where individuals feel threatened that they will lose their job either to other people who are more capable with new ICT’s or being replaced by new information systems (Tarafdar et al. 2010), Techno uncertainty indicates contexts where individuals feel unsettled due to the constant changes and upgrades of technologies inside the organizational workplace. Techno complexity refers to situations where individuals feel intimidated as well as inadequate in terms of technology skills due to the perceived complexity of newly introduced ICT’s within the workplace. Furthermore, Ayyagari et al. (2011) investigated the antecedents of technostress creators and empirically identified certain technology characteristics that have an impact on these stressors and constitute predictors of strain. Most of the extant studies have focused on the impact of technostress on numerous organizational outcomes such as productivity, job satisfaction, organizational commitment and end user performance (Ayyagari et al. 2011; Ragu-Nathan et al. 2008; Tarafdar et al. 2007, 2010). Few studies have attempted to examine factors that can alleviate the consequences of technostress. Organizational mechanisms such as literacy facilitation, technical support and involvement facilitation have been proposed as means that can alleviate the adverse impact of technostress on individuals (Ragu-Nathan et al. 2008; Tarafdar et al. 2010). However, the problem continues to exist in today’s organizations and further research is needed in order to identify more potential effective means that can mitigate the negative aftereffects of technostress (D’Arcy et al. 2014; Hung et al. 2011).

### ***Mindfulness & IT Mindfulness***

Mindfulness as a concept was initially introduced in psychology and the health sector as an attempt to discover alternative practices to alleviate medical and psychological health issues. Research findings indicate that mindfulness practices can offer myriad of benefits to individuals such as lower levels of depression and anxiety, relief from pain, enhanced well-being (Chiesa and Serretti 2010), improved working memory and increased emotional intelligence (Brown et al. 2007).

Mindfulness can be defined as a dynamic, rich state of awareness and alertness along with a heightened state of involvement (Langer 1989). It incorporates the idea of being in the present moment rather than focusing in past experiences and future plans. In contrast, mindlessness, the logical opposite of mindfulness, refers to a state of reduced attention accompanied by firm reliance and routine use of old categories, standard operation procedures, rigid decisions and inflexible thought processes (Butler and Gray 2006; Langer 1992). Several definitions have been proposed in the literature in an attempt to describe the concept of mindfulness as by academic consensus it is a difficult concept to define and operationalize (Glomb et al. 2011). Scientific research has adapted several different perspectives on mindfulness and has depicted it as: a state, a dispositional trait, an attitude, a cognitive process, a type of meditation and an intervention program (Choi and Leroy 2015).

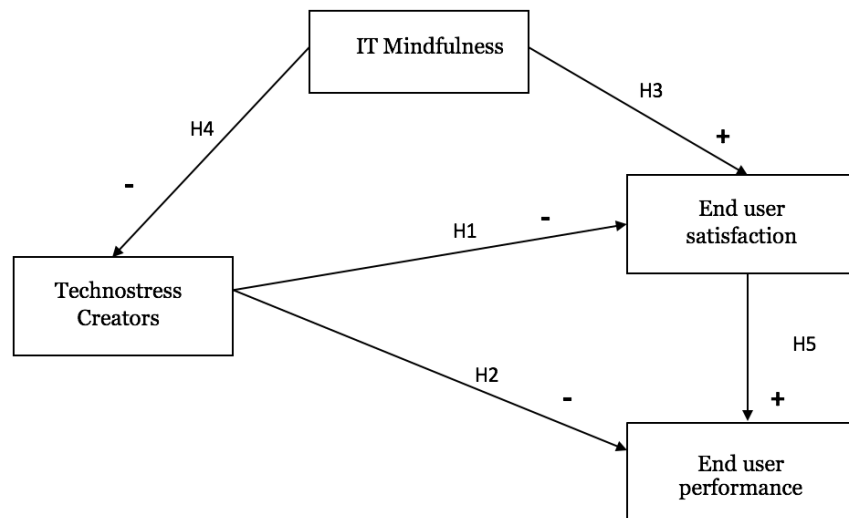
In the Information Systems (IS) domain, mindfulness was firstly introduced through the study of Swanson and Ramiller (2004), proposing the idea of incorporating mindfulness into the processes of comprehension, implementation, adoption and assimilation of an IT innovation in an organization. Later on, Butler and Gray (2006) argued that by adopting a mindfulness perspective organizations can achieve reliable performance of Information Systems. Henceforth, several research studies followed grounded either on Langer’s definition of mindfulness, who described the attributes of a mindful individual or Weick and Sutcliffe's (2001), who extended the concept of mindfulness from individuals to organizations. Extant IS literature is focusing mostly on the organizational level (Carlo et al. 2012; Vogus and Sutcliffe 2012) whereas research on the individual level remains limited till today (Sun 2011; Sun et al. 2016; Wolf et al. 2011).

Over the last decade, IS studies have widely adopted mindfulness as a theoretical lens and extended this notion in the IT systems’ use context investigating the influences of IT mindfulness on technology adoption decisions (Sun 2011; Sun et al. 2016) as well as on the use of e-government systems (Hadidi and Carter 2016). Despite this wide adoption of the concept of mindfulness in IS, there is a surprising paucity of research studies developing a domain specific instrument for the assessment of individual mindfulness (Roberts et al. 2007; Sun 2011). Recently, Thatcher et al (forthcoming) address this issue by systematically developing the concept of IT mindfulness and propose a domain specific individual-level measure of IT mindfulness defining it as ‘a dynamic IT-specific trait, evident when working with IT,

whereby the user focuses on the present, pays attention to detail, exhibits a willingness to consider other uses, and expresses genuine interest in investigating IT features and failures.’ (pg.5). Grounded on Langer’s (1989) definition, Thatcher et al (forthcoming) argue that IT mindfulness, oriented in IT use and contexts, consists of four dimensions: alertness to distinction, awareness of multiple perspectives, openness to novelty and orientation in the present. Alertness to distinction refers to the extent that an IT mindful individual understands the capabilities of IT applications and the context that they will prove more useful. As a result, when the individual notices discrepancies between his use and the actual potential of the system or application, he is able to generate new ways of using the system (Thatcher et al forthcoming). Awareness of multiple perspectives refers to the IT mindful individual who is able to identify and create multiple uses of a specific IT application as well as develop innovative solutions to problems that may arise in the working environment (Thatcher et al forthcoming; Roberts et al. 2007). Openness to novelty refers to the willingness of an individual to explore more potential and novel applications of the deployed system as he is always curious and flexible to experiment with it. At last, orientation in the present, refers to the IT mindful individual who is involved as well as focused on the present moment and current context and able to adapt technologies at several different contexts (Roberts et al. 2007).

## Theoretical Model and Hypotheses Development

The proposed theoretical model of the current study (as depicted in Figure 1) is based on the Transaction based Approach which has been the foundation for numerous studies focusing on stress (Ragu-Nathan et al. 2008). The transaction model of stress theorizes that stress does not reside neither in the individual nor in the environment but rather in the relationship between them and consists of four major components: stressors, situational factors, strain outcomes and other organizational outcomes (Cooper et al. 2001). Grounded on the Transaction based Approach, the proposed model suggests IT mindfulness as a situational variable or else called technostress inhibitor that can reduce the effects of technostress on individuals within occupational settings (Tarafdar et al. 2007). As a result, IT mindfulness is expected to be negatively associated with technostress creators. According to the transaction based model of stress, individuals experience strain as a result of technostress. Strain can manifest in either a behavioral form such as poor productivity, poor performance, turnover intention or in psychological outcomes such as job dissatisfaction and depression (Tarafdar et al. 2010).



**Figure 1. Research Model**

The majority of previous studies have been focusing on the investigation of the impact of technostress on behavioral and psychological outcomes. However, recent academic literature has proposed a third category of strain, that has been neglected by previous studies, introducing the perspective of end user computing. More specifically, it has been posited that technostress can lead to ICT strain by decreasing

users' satisfaction with the ICT applications they are using as well as by reducing individuals' task performance (Tarafdar et al. 2010). The proposed model of this study is focusing on the IT centric context. By encompassing the end user perspective, the current proposed theoretical framework highlights the need to evaluate the impact of technostress as well as the effectiveness of potential inhibitors on end user computing outcomes. As a result, the present framework suggests that IT mindfulness is expected to be positively related with end user satisfaction (Sun 2011) and indirectly associated with end user performance (Tarafdar et al. 2010). Also, technostress creators are expected to negatively influence end user satisfaction and end user performance (Tarafdar et al. 2010).

## **Hypotheses**

Recent evidence has shown that, technostress decreases end user satisfaction as each one of the five stress creating conditions has a negative impact on an individual's satisfaction with the deployed ICT at hand (Fuglseth and Sørebo 2014; Tarafdar et al. 2010). More specifically, techno overload imposes an enormous amount of receiving information to employees which is greater than the load they can efficiently handle and use thus they need to spend more time and effort to process this information. Due to this information overload, individuals feel dissatisfied with the content and output of the ICT's they are using at work. By disturbing the boundaries between home and workplace, techno invasion creates an unsettling environment to employees as they feel that they are never free of technology and are constantly under supervision. Perceiving that their personal life is being invaded by ICT's, individuals sense a loss of their privacy which results in dissatisfaction with the applications they are using. Moreover, the constant changes and updates of organizational ICT's make employees feel insecure and afraid that they will lose their job in case they are unable to adapt to new learning requirements. As a result, a negative attitude is created towards the ICT they are using for their work tasks (techno insecurity). Adding to that, techno complexity creates situations where an individual feels incompetent and intimidated in his endeavour to learn new applications resulting to become dissatisfied with ICT's due to crashes, errors and even loss of data. Likewise, due to techno uncertainty and the continuous updates and upgrades of organizational ICT's, employees, forced to constantly refresh and re-learn new applications and technologies, feel that their knowledge is rapidly becoming obsolete resulting to frustration and anxiety with the deployed ICT. Overall, based on the above arguments the first hypothesis is framed as:

**H1:** Technostress creators negatively influence end user satisfaction

In their landmark paper, Tarafdar et al. (2010) have empirically demonstrated that technostress creators have a negative impact on end user performance. Moreover, recently Chen and Muthitacharoen (2016) have conclusively shown that technostress can significantly undermine an employee's performance while utilizing ICT's for work tasks. As a result we hypothesize that:

**H2:** Technostress creators negatively influence end user performance

IT mindfulness can affect user satisfaction through several mechanisms. An IT mindful individual will respond in a more flexible and adaptive way in unexpected events occurring in his working environment thus resulting in higher end user satisfaction (Sun 2011). Instead of responding prematurely and habitually to stimuli, an IT mindful individual is actively engaged in the present, sensitive to every context, paying attention to every detail of the ICT application at hand (Carson and Langer 2006). By actively noticing new aspects of an ICT application and fully comprehending its capabilities, an IT mindful individual is open, flexible and curious to experiment with the ICT at hand in order to explore more features and potential uses that will allow him to resolve any challenging situation as well as accomplish his work tasks more effectively (Thatcher et al forthcoming). As a result, the individual perceives a higher satisfaction from the ICT he is using for his work tasks. Furthermore, an IT mindful individual is able to vary his response and shift perspectives depending on the context, create innovative solutions to resolve occurring problems and implement 'workarounds' in order to achieve a fit between the deployed technology and the task at hand (Carson and Langer 2006; Roberts et al. 2007). As a result, he is able to complete his ICT mediated tasks successfully thus experiencing more positive feelings and less negative attitude towards the ICT in use. Based on the above arguments, we frame the third hypothesis as:

**H3:** IT Mindfulness is positively related to end user satisfaction

Techno overload forces employees to deal with numerous interruptions and severe multitasking leading to hurried and ineffective information processing, leaving little time and less focused attention to

accomplish other important tasks (Tarafdar et al. 2015). By viewing situations from multiple perspectives and allowing deviations from the habitual way of working, an IT mindful individual is able to adapt to shifting environments and create innovative solutions to problems that may arise such as use the system in more creative ways than what the user was originally trained for or even uses unintended by the designer, as well as implement 'workarounds' in order to execute his work processes (Langer 1989; Roberts et al. 2007). As a result the impact of techno overload is decreased. Techno invasion has created blurring boundaries between home and the workplace making employees feel that they can be reached anywhere and anytime through their mobile computing devices. Oriented and focused in the present, an IT mindful user is able to adapt his ICT applications' uses depending each time on the specific context (Thatcher et al forthcoming). As a result, an IT mindful user is able to change the context and vary his response to incoming interruptions when he is away from work by adapting to the current environment and consciously understanding his alternative choices such as deciding to avoid using his work mobile device when he is at home (Ragu-Nathan et al. 2008). By fostering sensitivity to different contexts and allowing the escape from rigid mindsets and narrow perspectives, IT mindfulness can decrease the invasive effects of ICT's into employees' lives as well as alleviate the unsettling feelings that individuals experience thus decreasing the impact of techno invasion. Techno uncertainty and techno complexity create situations where individuals feel unsettled as well as inadequate in terms of their knowledge and skills against the complexity and constant changes and upgrades of organizational ICT's. Engaged in openness to novel stimuli and new information, an IT mindful user demonstrates curiosity and willingness to experiment and explore existing and new features of ICT applications thus decreasing the perceived complexity of the deployed ICT's (Langer 1989; Thatcher et al forthcoming). Adding to that, IT mindfulness enhances the certainty and control that an individual feels over a situation thus overall decreasing the impact of the previously mentioned stressors (Langer 1989). At last, an IT mindful individual can decrease his feelings of job insecurity (techno insecurity) by considering alternate perspectives (Langer 1989). For example, it is very common nowadays for most people to think that artificial intelligence and emerging technologies will cause job destruction and eventually will replace people's jobs in the near future. As a result, this notion may create unsettling feelings to employees under some circumstances. In this case, an IT mindful individual can consciously change his interpretation by acknowledging that the situation is not life threatening and he can cope by continuously adapting his skills and knowledge to new technologies for example. By escaping from a rigid mindset and narrow perspectives as well as from categories and distinctions formed in the past, an IT mindful individual is able to unlock his mindset and focus on the present, create new categories and interpret the challenging situation differently (Langer 1989). Based on the previous arguments the fourth hypothesis can be formed as:

#### **H4:** IT Mindfulness negatively influences technostress creators

Recent previous studies have conclusively shown that user satisfaction has a strong positive effect on individual performance in terms of productivity and task innovation (Hsu et al. 2008) as well as demonstrated that increased user satisfaction with business intelligence systems can positively affect the individual performance of an employee (Hou 2012). Furthermore, it has been empirically validated that end user satisfaction positively influences end user performance within organizational settings (Tarafdar et al. 2010). More specifically, individuals that are satisfied with the ICT's they are using at work, manage to process information more effectively thus improving the quality of their work. In addition, employees satisfied with the deployed ICT's have more free time and are more willing to explore additional functions of an application or a technology as well as search for more efficient ways to execute a work processes thus becoming more creative and innovative (Tarafdar et al. 2010). In other words, end user satisfaction improves end user performance in terms of productivity and innovation. Based on the above arguments the fifth hypothesis can be framed as:

#### **H5:** End user satisfaction positively influences end user performance

## **Methodology**

In order to answer the research question of the present study, we adopted a survey based approach using SEM in order to test the proposed hypothesis and investigate the relationships between the selected variables. A quantitative approach using a survey was deemed as most appropriate for the execution of the current study, as our aim was to extract information and explore several industries, sectors and people

from different backgrounds that would provide deep insights and richness to our results. We employed an online survey using a questionnaire targeted at working individuals who use ICT's in order to complete their day-to-day work tasks. All measures were adapted from existing literature and more specifically: Technostress creators were derived from Ragu-Nathan *et al.* (2008), IT Mindfulness was adapted from Thatcher *et al.* (forthcoming), end user performance from Tarafdar *et al.* (2010) and end user satisfaction was derived from Bhattacharjee (2001). All items in the questionnaire were measured with a five-point Likert scale (1=strongly disagree, 5=strongly agree). The online survey was emailed to potentially interested participants as well as it was posted in social media and relevant forums in order to insure high response rate. A pilot survey with a sample of 20 PhD students was conducted before the actual distribution of the survey, in order to receive feedback and make any necessary changes in the phrasing/wording of questions. A sample of 473 questionnaires was totally collected. We carefully examined the collected data and by removing missing data and incomplete responses the usable sample was 440 responses.

## Results and Data Analysis

The survey results showed that participants were almost equally male (49.3%) and female (50.7%), most of them between the ages of 26-35 (46.1%), holding a Master's degree (40.5%), with a total working experience 1-5 years (27.3%). Before testing the model, we conducted preliminary validity and reliability analysis that showed all scales had Cronbach alpha's above 0.8 exceeding the recommended value of 0,7 (Nunnally 1978). To test the hypotheses, covariance based Structural Equation Modeling (SEM) was used with AMOS. We validated the existence of the second order constructs for technostress creators and end user performance by calculating the target coefficient (the ratios of the chi squares of the first order model and the second order model). Both t-coefficient were above the recommended value of 0.8 (Marsh and Hocevar 1985), thus confirming our second order models. The first step included Confirmatory Factor Analysis (CFA) and then the structural model followed in order to test the hypotheses. To ensure the best results in terms of the model fit, reliability, and validity, this study deleted the items with low factor loadings. Table 1 shows the fit statistics for the measurement and the structural models. As depicted, all values match or pass the cut offs for each one of the fit indices. For the Chi-square/df, values between 1 and 5 suggest good fit, CFI should be greater than 0.90 (Salisbury *et al.* 2002), RMSEA below 0.08 and for RMR values below 0.08 suggest good fit (Schreiber *et al.* 2006). Convergent, Discriminant and Nomological validity analyses were also conducted where the AVE was above 0,5, CR was above 0,6 for all constructs and the square root of AVE was greater than all construct interrelations (Chin 1998). Furthermore, we tested for Common Method Bias (CMB) in SPSS with Harman's single factor test where results showed that the single factor results for less than 50% of the total variance thus indicating that there is no bias in our data collection. Also, we included gender, age and total working experience as control variables in our analysis. Results of SEM analysis showed that the effect of control variables on the dependent variables of the model was not significant thus they were excluded from the final structural model.

Model	Chi-Square	Chi-Square/df	CFI	RMSEA	RMR
Measurement model	202.6	2,8	0.940	0,066	0,033
Structural model	260.2	3,6	0.914	0,078	0,045

**Table 1. Goodness of Fit Statistics**

It was predicted in Hypothesis 1 (H1) that people experiencing higher levels of technostress will be more likely to have lower satisfaction from ICT applications they are using in order to complete their work tasks. A significant negative correlation between Technostress Creators and End User Satisfaction was observed ( $b=-.170$ ,  $p=0.027$ ). As a result, H1 is supported. In addition, it was predicted that technostress affects a user's performance while using ICT applications. As expected, a significant negative relationship was found between Technostress creators and end user performance thus confirming H2 ( $b=-.273$ ,  $p=0.001$ ). In addition, H3 predicted that IT Mindfulness will increase the user's satisfaction with the utilized ICT's at work. A significant positive relationship between IT mindfulness and end user satisfaction was found where  $b=.456$  and  $p<0.001$  thus confirming H3. Furthermore, H4 hypothesized that IT Mindfulness will decrease the impact of technostress on individuals. A significant negative path

between IT mindfulness and technostress creators was obtained where  $b = -.541$  and  $p < 0.001$  so thus H4 is supported. Hypothesis 5 indicated that an employee's user satisfaction can positively influence his user performance within organizational settings. The path between end user satisfaction and end user performance was significant and positive ( $b = .591$ ,  $p < 0.001$ ) thus H5 is supported.

## **Discussion and Conclusions**

The present study investigates for the first time the effects of mindfulness on technostress within workplace settings. Our results revealed that a more IT mindful individual is able to adapt and cope more effectively with technostress conditions that arise daily due to the extended use of organizational ICT's. As a result, a higher degree of IT mindfulness can alleviate the unsettling feelings of technostress experienced by individuals as well as mitigate the negative consequences arising from it by enhancing employee satisfaction with ICT's and improving task performance.

Exploring a sample of 440 working individuals, the results of the quantitative analysis showed that ICT induced stress experienced by individuals generates dissatisfaction with the utilized ICT applications and systems and reduces ICT-enabled task performance. This finding is supported by theory and also is in accordance with previous research (Chen and Muthitacharoen 2016; Tarafdar et al. 2010). Previous IS studies have empirically shown that technostress can severely impair both individual's satisfaction and task performance while utilizing ICT applications for their day-to-day work processes (Chen and Muthitacharoen 2016; Ragu-Nathan et al. 2008; Tarafdar et al. 2010). Therefore, it becomes apparent that although ICT's may offer significant advantages to today's organizations, without effective organizational mechanisms that can counterbalance technostress conditions the appropriation of benefits from implemented organizational ICT's is dramatically inhibited.

Acknowledging the limited focus of previous technostress studies, this study contributes to the Technostress literature and provides an enhanced understanding of this phenomenon by investigating ICT induced stress (Technostress) from a Mindfulness perspective that has not been adopted before. Previous studies have posited that current stress inhibitors are ineffective in reducing the adverse aftereffects of technostress and more research is needed to identify more organizational mechanisms that can combat this phenomenon (Hung et al. 2011). Addressing this call for further research, the current study adopted a mindfulness approach and proposed it as technostress inhibitor that can buffer the exposure of technostress. The results of our SEM analysis revealed that IT mindfulness can effectively combat technostress that arises within work settings. In agreement with similar previous studies (Sun 2011; Sun et al. 2016), our results also showed that IT mindfulness can directly increase an individual's satisfaction with the technology used for his work related tasks and indirectly enhance his task performance for ICT-mediated tasks. As a result, this study contributes and expands the Technostress literature by identifying IT mindfulness as an effective prevention mechanism that can be used to mitigate the negative consequences arising from technostress. From the practical implications' perspective, our study offers an effective organizational mechanism that managers can utilize in their endeavor to combat technostress conditions, enhance individual outcomes, reduce workplace stress costs and thus improve the overall performance and efficiency of the organization.

In terms of limitations, although our sample of 440 exceeds the required minimum value for SEM, a larger sample would help to establish more generalized results. Also, diverse populations, different industries and sectors could reveal different results. There are no similar studies in the literature investigating the effects of mindfulness on technostress that we can relate to and establish properly the validation of our results. A longitudinal study could yield more interesting results than a cross sectional approach that we followed in the present study. Future research should expand the proposed model and test the effects of the proposed technostress inhibitor on additional organizational outcomes such as job satisfaction, organizational commitment and turnover intention. Furthermore, alternative methods for measuring IT mindfulness and task performance could be used in future research in order to address the limitations of self-reported measures. In addition, future research should validate the proposed model by following a different methodological approach such as qualitative research including interviews that could provide richer and deeper insights showing how IT mindfulness affects technostress creators.

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