You and Your Technostress:
Relating Personality Dimensions to ICT-Related Stress

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Personality trait research with self and observer ratings has been previously applied in psychology, however, in the HRM field, most studies on personality features have been limited to self-assessment data. We investigate how personality is associated with the stress related to the use of Information and Communication Technologies (ICTs) which has been termed by a number of scholars as technostress. Drawing from both prior research on personality dimensions and studies on antecedents of technostress, we examine the relationship between technostress creators and technostress antecedents such as personality traits, differences between self and observer ratings, availability through ICTs and use of ICTs. Our findings, based on ordered regression analysis, show that pseudo-extraverts and pseudo-conscientious individuals are likely to experience lower levels of techno-invasion. Moreover, results demonstrate that individuals with high levels of conscientiousness and extraversion tend to have higher levels of techno-insecurity and techno-overload, respectively. Finally, we also find that increased availability through ICTs is associated with high levels of techno-invasion. Interestingly, the use of ICTs has a negative effect on technostress. The implications of these findings are discussed, and directions for future research are suggested.

Keywords: Technostress; Personality Assessment; Information and Communication Technologies

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INTRODUCTION

Information and communication technologies (ICTs), such as mobile phones and social media, have undergone the fastest growth of any technology in human history. Mobile users increased from a few tens of thousands in 1980 to around 7 billion in 2015, and Facebook users rose from zero in 2004 to 1.5 billion users in 2015 (Sachs et al., 2015). Of US adults, 90% report using their cellphone very frequently, while 31% admit they never turn their cellphone off (Rainie & Zickuhr, 2015).

The possibility of being available through ICT at work has transformed a number of current jobs and brought about several benefits, such as flexibility, networking opportunities, and increased engagement (Purcell & Rainie, 2014). Although ICTs support different positive organizational (Melville, Kraemer, & Gurbaxani, 2004), team, and individual outcomes (Maruping & Agarwal, 2004) at work, they are also associated with several negative aspects. (Ragu-Nathan, Tarafdar, Ragu-Nathan, & Tu, 2008). These negative aspects form five dimensions of technostress, or stress related to the use of ICTs: such as work overload, complexity, insecurity, invasion and uncertainty (M. Tarafdar, Q. Tu, B. S. Ragu-Nathan, & T. S. Ragu-Nathan, 2007b).

Consequences of technostress have been analyzed by many Information Systems (IS) scholars. Tarafdar et al. (2007b) examined the inverse relationship of technostress and individual productivity, while Ragu-Nathan et al. (2008) found that technostress is negatively associated with job satisfaction and leads to decreased organizational commitment. Tarafdar, Tu, and Ragu-Nathan (2010) studied individuals' satisfaction with ICTs and explored the negative impact of technostress on users' satisfaction. Similarly, Fuglseth and Sørebø (2014) examined the negative link between technostress and employee satisfaction with the use of ICT, as well as employee intentions to extend their use of ICT. Similar consequences were also studied by (Tarafdar, Pullins, & Ragu-Nathan, 2015), who investigated the effect of technostress on discontinuous usage intentions.

Studies on antecedents of technostress seems to be limited compared to studies, like those cited above, that deal with its consequences. In addition to negative effects of technostress, Tarafdar et al. (2010) analyzed the importance of user involvement and innovation support

mechanisms as factors that are negatively related to technostress. Shu, Tu, and Wang (2011) considered computer self-efficacy and technology dependence and discovered that a lower level of technostress is associated with a higher level of computer self-efficacy, while a higher level of computer-related technostress is related to a higher level of technology dependence. Ayyagari, Grover, and Purvis (2011) found that intrusive technology characteristics are the dominant predictors of technostress. Ragu-Nathan et al. (2008) examined the effect of differences in individual characteristics on technostress, finding that females experienced less technostress than males and that technostress decreased as education, age and computer confidence increased.

Although the importance of individual characteristics as antecedents of technostress were acknowledged in these studies, there is still a gap in understanding the effect of individual personality traits on stress related to the use of ICTs. Two research streams regarding personality traits are connected to the topic of this paper.

The first of these is the role of personality in the use of different types of ICTs. IS scholars started to discuss the relationship between personal factors and information systems a few decades ago (White, 1984). Most recent studies focus on the link between personality traits, often measured with the support of the five-factor model, and various factors, such as internet use (McElroy, Hendrickson, Townsend, and DeMarie (2007), use of collaborative technology (Devaraj, Easley, & Crant, 2008), use of Facebook in terms of the nature of posts or number of Facebook connections (Moore & McElroy, 2012) and use of librarians' discovery tools (Aharony & Prebor, 2015).

The second research stream related to the current study is the role of personality in job stress, which has been broadly explored in the literature (Grant & Langan-Fox, 2006; Sur & Ng, 2014). Carver and Connor-Smith (2010) argued that personality differences in reaction to stressful events may result in the adoption of various coping strategies that concern the process of adaptation in response to the disruptive events that occur in individuals' environment (Lazarus & Folkman, 1984). Concerning these differences, scholars have indicated that some personality traits moderate interdependence between work stressors and counterproductive work behaviors (Eschleman, Bowling, & LaHuis, 2014) while other traits influence stress responses (Schneider, Rench, Lyons, & Riffle, 2012). As our main research goal is to explore the relationship between technostress and personality factors, and the

studies on this relationship are rather limited, we form hypotheses on the basis of the above-mentioned research streams.

Through analysis of the literature on technostress, personality, job stress, and ICT use we develop the research model for this study, which is discussed below and presented in Figure 1.

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Prior Research and Study Hypotheses

We begin this section with an analysis of differences in self- and observer assessments of personality. Next, we refer to literature on personality dimensions and their possible impact on technostress. Finally, we explore availability – the fact of being connected – through ICTs, which is increasing because of changing social norms.

Self- and Observer Reports of Personality and Technostress

The majority of studies on personality have been based on self-reports of personality traits, which have been related to different work-related outcomes. However, some scholars have noted that self-ratings alone may underestimate personality features (Mount, Barrick, & Strauss, 1994). Oh, Wang, and Mount (2011) argued that personality assessment contributes to understanding overall job performance and that observer ratings present incremental validity over self-reports. Similarly, Connelly and Hülsheger (2012) stipulated that observers have a clearer view of personality traits than do self-raters.

Another view on self- and observer ratings is presented in socioanalytic theory (R. Hogan & Roberts, 2004), according to which self-assessment of personality captures an individual's identity, while observer assessment evaluates reputation (R. T. Hogan, 1991). Incongruence related to identity might be the cause of social stress – that is, stress based on one's relationships with others – because many identities are related to different social pressures and demands (Burke, 1991). However, some ICTs may help to facilitate the aforementioned incongruence, as they play an important role for individuals with some personality traits. Kets

de Vries (2012) discovered, on the basis of a 360-degree questionnaire, that top performers are usually introverts who have learned extraverts' behaviors, which are crucial to building social networks. This phenomenon, termed pseudo-extraversion, can be observed through the difference between self-ratings and observer-ratings. As ICTs bring some benefits to introverts (Yen et al., 2012), they might also be useful for pseudo-extraverts. On the other hand, a combination of identity incongruence and some personality dimensions, such as the low-spirited/high-spirited dimension, may result in an increase of technostress. Srivastava, Chandra, and Shirish (2015) argued that individuals with high levels of neuroticism are likely to form negative views about ICTs.

Hypothesis 1A: The difference between self-ratings and observer ratings in the introvert-extrovert dimension is negatively associated with level of technostress creators.

Hypothesis 1B: The difference between self-ratings and observers ratings low-spirited-high-spirited dimension is positively associated with level of technostress creators.

Personality dimensions and Technostress

Introverted - Extraverted Dimension. Individuals with high extraversion are social, active and outgoing (Watson & Clark, 1997), whereas those with high introversion are more likely to spend time alone and prefer to live in a quiet, minimally stimulating external environment (Cain, 2013). The introverted/extraverted dimension is often included in the most popular personality scales, such as the Big Five model of personality (Costa & McCrae, 1992). Devaraj et al. (2008) stated that people with high extraversion are naturally comfortable with the use of ICTs to create a good social image in their organizations. Srivastava et al. (2015) argues that individuals with high extraversion may perceive technostress creators as an opportunity to develop a better image of themselves.

However, research also shows a positive relationship between introversion and the use of ICTs (Amichai-Hamburger, Wainapel, & Fox, 2002; Mitchell, Lebow, Uribe, Grathouse, & Shoger, 2011). Additionally, some studies indicate that individuals who experience loneliness and social anxiety (a construct conceptually related to introversion (Valkenburg & Peter, 2007)) experience some benefits when interacting through ICTs (Bonetti, Campbell, & Gilmore, 2010; Yen et al., 2012). Moreover, an individual who shows high levels of extraversion would be more concerned with information privacy (Korzaan & Boswell, 2008).

Many scholars underline that privacy concerns are among the most important problems in information age (Malhotra, Kim, & Agarwal, 2004; Smith, Milberg, & Burke, 1996) and that they are related to technostress creators (Ayyagari et al., 2011).

Hypothesis 2. Extraversion is positively associated with level of technostress creators.

Negative Self-Esteem – Positive Self-Esteem Dimension. Self-esteem reflects how an individual evaluates his or her sense of self-worth (Blascovich & Tomaka, 1991) or makes self-judgments based on his or her self-knowledge (Baumeister, 1998). Self-esteem might serve as the foundation of one's mood state and is linked to assertiveness (which concerns the need to choose one's own way of doing) (Kets de Vries, Vrignaud, Korotov, Engellau, & Florent-Treacy, 2006). Many scholars have studied the interdependence between self-esteem and work stress, with results demonstrating that individuals with high self-esteem display more coping resources than others and consider their work settings to be controllable, decreasing their risk for depression (Lee, Joo, & Choi, 2013). Another research stream concerns low self-esteem as a cause of technology addiction (Kim & Davis, 2009; Yao, He, Ko, & Pang, 2014). Finally, self-esteem has been studied as a source of proactive behavior (Crant, 2000), whereas, according to Hung, Chen, and Lin (2015), a proactive personality is negatively related to technostress.

Hypothesis 3. Self-esteem is negatively associated with level of technostress creators.

Laissez-faire – Conscientious Dimension. Conscientiousness refers to a tendency to show self-discipline, carefulness, thoroughness, and planned rather than spontaneous behavior (Thompson, 2008). Many researchers have identified a positive contribution of conscientiousness to different outcomes, such as preventative health-related behaviors and self-perceived health (Takahashi, Edmonds, Jackson, & Roberts, 2013) or psychological health (Hill, Nickel, & Roberts, 2014). However, more recent studies have explored negative effects of high levels of conscientiousness, such as negative emotions (Fayard, Roberts, Robins, & Watson, 2012), tension following negative feedback (Cianci, Klein, & Seijts, 2010), and lower psychological well-being (Carter, Guan, Maples, Williamson, & Miller, 2015). Because today's ICTs can be very complex (Leach, 2008) and cause information overload (Karr-Wisniewski & Lu, 2010), very well-organized and dependable individuals with high conscientiousness might experience some negative outcomes while using ICTs.

Hypothesis 4. Conscientiousness is positively associated with level of technostress creators.

Prudent – Adventurous Dimension. This dimension is closely correlated to the distrustful-trustful dimension, and adventurousness is related to the openness to experience dimension of the Big Five model (Kets de Vries et al., 2006). According to McCare and John (1992), openness to experience involves several facets, such as active imagination, aesthetic sensitivity, attentiveness to inner feelings, preference for variety, and intellectual curiosity. High levels of openness to experience are associated with positive attitudes towards ICTs and the associated stresses (Devaraj et al., 2008). Srivastava et al. (2015) argued that openness to experience has a positive impact on technostress creators which can be used as an opportunity to perform better.

H5. Adventurousness is negatively associated with levels of technostress creators

Availability through ICTs, Use of ICTs and Technostress

The theory of planned behavior explains how beliefs shape individual's behavior. This theory introduced subjective norms among the factors that determine behavioral intention (Ajzen, 1991). Subjective norms concern individuals' perceptions of social pressures when engaging in certain behaviors (Ajzen & Fishbein, 1980). The increasing use of smartphones, tablets and ultrabooks leads to an assumption that it is necessary for individuals to be available to others through ICTs at any time and in any place (Schellhammer, Haines, & Klein, 2012). According to a study on digital divisiveness (Levine, 2014), nearly nine out of ten individuals report that they will stop paying attention to their family or friends to focus on something happening on their digital devices; similarly, 32% of respondents report replying within 15 minutes of receiving e-mail at work (Kelleher, 2013).

Although social norms are changing in favor of people's continual availability through ICTs, unlimited access to ICTs increases levels of stress (Kushlev & Dunn, 2015). The use of ICTs depends on the degree of accessibility and availability (Meso, Musa, & Mbarika, 2005). However, extended availability may be related to excessive use for business and private purposes that could become a reason for stress.

Hypothesis 6A. Availability through ICTs is positively associated with levels of technostress creators.

Hypothesis 6B. Use of ICTs is positively associated with levels of technostress creators.

Research Method

Study Design

Following the primary goal of the study, two data sets were used to test the hypotheses. The first data set, concerning self-reported technostress creators, was based on the study conducted on use and availability through ICTs (Ragu-Nathan et al., 2008). We also collected some demographic information. The second data set was related to self- and observer-rated personality dimensions. Both data sets were collected through online surveys completed by master's program participants.

Data Collection

We informed 200 master's program participants about the possibility of participating in the study. Of the 200 participants, 69 agreed to fill in the self-reported surveys and find observers for the personality survey. These observers included friends, family members, and co-workers. A total of 64 subjects and 199 observers sent back their surveys. After removing incomplete data, the final sample consisted of 49 self-rated questionnaires and 152 observer-rated questionnaires. Of the subjects, 55% were female and 45% were males, with an average age of 24 years old (ranging from 19 to 36). Participants came from several countries: Germany, Netherlands, France, Poland, Belarus, Ukraine, United States, India, and Turkey.

Constructs and Measurement

Technostress creators include techno-overload (situations with higher workload generated by ICTs), techno-invasion (the invasive impact of ICTs on personal life), techno-complexity (difficulty in learning to use ICTs), techno-insecurity (situations in which users' jobs are threatened due to ICTs), and techno-uncertainty (related to new ICT developments) (Ragu-Nathan et al., 2008).

Some scholars have expressed concerns about measuring system use through self-reports (Kumar, 2003), indicating that collecting data directly from the system is a more appropriate means of measurement (Venkatesh, Morris, Davis, & Davis, 2003). However, because our

aim was to measure total time spent on different ICTs, such as email, mobile calls, SMS, and online social networking platforms, data collection from all these sources was not possible. For this reason, self-assessment was used to measure the use of ICTs as well as participants' availability through ICTs.

Seven personality dimensions (negative self-esteem/positive self-esteem, low-spirited/high-spirited, distrustful/trustful, introverted/extraverted, prudent/adventurous, laissez-faire/conscientious, and self-effacing/assertive) were assessed through self- and observer reports using the personality audit tool developed by Kets de Vries et al. (2006).

In previous research, age did not affect computer-related stress (Hudiberg & Necessary, 1996), but Burton-Jones and Hubona (2005) found a negative relationship between technology use and age. For this reason, age serves as a control variable in our study. Moreover, we included gender as a variable, as prior scholarly work indicated that women experience less ease of use with ICTs than men do (Gefen & Straub, 1997). Finally, we controlled for education which supports use of ICTs (Agarwal & Prasad, 1999) and work experience, which translates into different outcomes such as skills, attitudes and motivation (Tesluk & Jacobs, 1998).

ANALYSIS AND RESULTS

Hypotheses Testing

Ordered logistic regression models are applied to analyze ordinal dependent variables (Fullerton, 2009). In our study technostress creators were coded as ordinal variables. Results are presented in Table 1. In the first model with techno-invasion as a dependent variable the difference between self- and observer ratings in the introverted-extroverted dimension (OR= 0.30, p<0.05) and in the low-spirited-high-spirited dimension (OR=6.03, p<0.01) are included.

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Results show that for a one-point increase in the difference between self and observer ratings in the introverted-extroverted dimension, the odds of very high techno-invasion versus the combined high, average, low and very low categories are 0.30 times lower, given that the other variables are held constant in the model. Likewise, for a one-point increase in the difference between self and observed ratings in introverted-extroverted dimension, the odds of the combined very high, high, average and low categories versus low categories are 6.04 times greater, given that the other variables are held constant.

The results confirm hypotheses H1A and H1B for techno-invasion. Moreover, availability through ICTs (OR=1.13, p<0.05) and the use of ICTs (OR=0.78, p<0.01) are statistically significant proxies for techno-invasion. Therefore, according to hypothesis H6A, availability through ICTs is positively associated with techno-invasion. However, contrary to the hypotheses H6B, use of ICTs is negatively associated with techno-invasion.

In line with our assumptions, control variables, i.e. gender (OR = 0.10, p<0.01) and education (OR=0.14, p<0.01) are proved to be statistically significant. It means that male gender and higher education are negatively related to techno-invasion.

In the second model with techno-insecurity as independent variable, the self-reported negative-positive self-esteem dimension (OR=0.29; p<0.01) was tested and found to be statistically significant. For a one-point increase in self-esteem dimension, the odds of very high techno-insecurity versus the combined high, average, low and very low categories are 0.29 times lower, given that the other variables are held constant in the model. Therefore, hypothesis H3 is confirmed for techno-insecurity. Findings also showed that self-reported laissez-faire_conscientious dimension (OR=2.47, p<0.05) is positively related to techno-insecurity. Thus, hypothesis H4 is also confirmed for techno-insecurity. Similarly to the first model, education (OR=0.23, p<0.05) is negatively associated with techno-insecurity. When observer data is included in the model, self-esteem (OR=0.26, p<0.05) is also negatively associated with techno-insecurity.

In the third model with techno-overload as independent variable, the self-reported introverted-extroverted dimension (OR=2.04, p<0.05) and self-effacing-assertive dimension (OR=0.49, p<0.05) are statistically significant. When observer data is included in the model, the introverted-extroverted dimension (OR=2.77, p<0.05) and prudent-adventurous dimension (OR=0.42, p<0.05) are statistically significant. Thus, hypothesis H2 is confirmed

for techno-overload and hypothesis H5 is supported for techno-overload and observer assessments.

Summary of Results

Findings from Model 1 show that the difference between self-ratings and observer ratings in the introvert-extrovert dimension is negatively associated with techno-invasion (H1A), while the difference between self-ratings and observer ratings in the low-spirited-high-spirited dimension is positively related to techno-invasion (H1B). Moreover, high availability through ICTs is a proxy for higher techno-invasion (H6A) but high use of ICTs is not positively associated with techno-invasion (H6B); in fact we found even the opposite effect.

Results from model 2 indicate that high self-esteem is negatively correlated with techno-insecurity (H3) for both self-rated and observer data and high conscientiousness is positively associated with techno-insecurity (H4) for self-ratings.

Finally, model 3 showed that high extraversion is found be positively linked to techno-overload (H2) for both self-rated and observer data and that high adventurousness is associated with lower levels of techno-overload (H5) for observer assessment.

DISCUSSION

In this study we examined several antecedents of technostress creators. First, we found an impact of differences in self-and observer assessments of the low-high-spirited dimension on techno-invasion. This result aligns with that of Srivastava et al. (2015) who indicated that high levels of neuroticism are linked with a negative approach to ICTs. Second, we confirmed the impact of differences in self- and observer assessments of the introverted-extroverted dimension on techno-invasion. This impact is in line with the findings of Kets de Vries et al. (2006), who explained the phenomenon of pseudo-extraversion (i.e., introverted individuals with the ability to behave as extroverts), and of Yen et al. (2012), who underlined benefits related to the use of ICTs for introverted individuals.

Third, according to studies indicating that stress is increased by the unlimited possibility of using ICTs (Kushlev & Dunn, 2015), we found support for a positive relationship between techno-invasion and availability through ICTs. Contrary to our expectations, the use of ICTs is negatively related to techno-invasion. A possible explanation is that, because of changing social norms in favor of ICTs, individuals experience positive feelings related to the use of ICTs. Availability through ICTs refers to an individual's readiness to, for example, receive and respond to email, answer a call, or see an update from a colleague on an online networking platform. This readiness might be tiring and stressful, especially in the long term. Although the use of ICT is correlated to availability through ICTs, use is adjusted to the individual's preference and needs, whereas availability can facilitate an invasive impact of ICTs on personal life.

Another interesting finding is in line with research on the negative interdependence between work stress and self-esteem (Lee et al., 2013). We found that techno-insecurity is negatively related to self-esteem. As self-esteem reflects an individual's overall evaluation of his or her own worth (Leary & Baumeister, 2000), its negative impact on techno-insecurity was expected. We also investigated the influence of conscientiousness, which, at high levels, can result in lower psychological well-being (Carter et al., 2015). Our study, as predicted, supported the negative influence of conscientiousness on techno-insecurity.

In line with research indicating introverts' preference for online over face-to-face communication, we found a positive relationship between techno-overload and extraversion. Finally, following previous studies on openness to experience (Devaraj et al., 2008), our results show that adventurousness is positively associated with techno-overload.

CONCLUSION

Contributions to Research and Theory

Although scholars have begun to examine the impact of personality traits on individual outcomes (Srivastava et al., 2015) and individual well-being (Higgs & Dulewicz, 2014), previous studies have instead focused on the relationship between personality and use of technology (Aharony & Prebor, 2015), while negative individual outcomes such as

technostress have not been investigated in detail. Our study contributes to the technostress research steam by focusing on antecedents of technostress, in contrast to previous scholarly work concentrating on consequences, such as individual productivity (M. Tarafdar, Q. Tu, B. S. Ragu-Nathan, & T. Ragu-Nathan, 2007a) or job satisfaction (Ragu-Nathan et al., 2008).

We analyzed not only self-reported data but also observer assessments and differences between self- and observer ratings. Previous work has confirmed that observers have a clearer view of personality traits than self-raters (Connelly & Hülsheger, 2012) and understanding these differences might bring some values for personal development (Van der Heijden & Nijhof, 2004). In our study, the negative relationship between self-esteem and techno-insecurity and the positive relationship between extraversion and techno-overload were confirmed by both self-reported and observer data. Moreover, observer ratings showed stronger effects on technostress creators.

The theory of planned behavior was also addressed when theorizing about the role of subjective norms in increasing availability through ICTs and use of ICTs, as well as the influence of ICT-related factors on technostress creators.

Implications for Practice

The results from this study can be applied in managerial practice, as managers and their teams increasingly use various ICTs. Our findings indicate the importance of personality differences in allocating responsibilities for ICT use. To allocate these responsibilities, managers need to have knowledge about team members' personality traits and the impact of specific psychological constructs on technostress creators. For example, our study shows that highly conscientious individuals exhibit increased levels of techno-insecurity. For this reason, employees with very high conscientiousness should not be assigned to ICT-intensive roles.

Moreover, apart from allocation of ICT responsibilities, managers can use insights from this research to improve communication with their team members with certain personality dimensions. Interaction through ICTs is recommended for use with introverted team members, who experience lower levels of techno-invasion, whereas for extraverts face-to-face communication could be beneficial to decrease techno-invasion.

Furthermore, this research uses 360-degree feedback instruments. Previous studies have indicated the usefulness of 360-degree tools for self-awareness (McCarthy & Garavan, 1999) and leadership development (Kets de Vries, Vrignaud, & Florent-Treacy, 2004). Our study promotes 360-degree assessment for understanding the impact of differences between self- and observer ratings on techno-stress creators. For instance, pseudo-extraverts tend to cope well with ICTs, whereas people with a significant difference between self-rated and observer-assessed low-spirited/high-spirited dimension are inclined to exhibit higher levels of techno-invasion.

Finally, the results provide knowledge about the effect of availability through ICTs and use of ICTs on techno-invasion. Although these two ICT-related factors are correlated, they have opposite impacts on techno-invasion; specifically, high availability through ICTs may increase techno-invasion, whereas the use of ICTs may decrease it. These findings suggest that managers should wisely apply ICT usage norms and times when employees are required to be available.

Limitations and Future Research

In terms of limitations, although the majority of study participants have working experience, it should be noted that our research was conducted among students, who may exhibit different levels of technostress creators compared to employed professionals. Also, the number of respondents considered for the statistical analysis was quite low, as we used only those respondents who were evaluated by at least two observers.

Another limitation of the study is the lack of observer data for technostress creators. Developing such an instrument would be rather challenging, because it might be difficult for observers to evaluate others' feelings about technology.

In terms of future research, addressing differences between self and observer scores should be beneficial for theory and practice. Moreover, scholars studying the impact interactions between the use of ICTs and personality traits on technostress creators may shed new light on antecedents of technostress.

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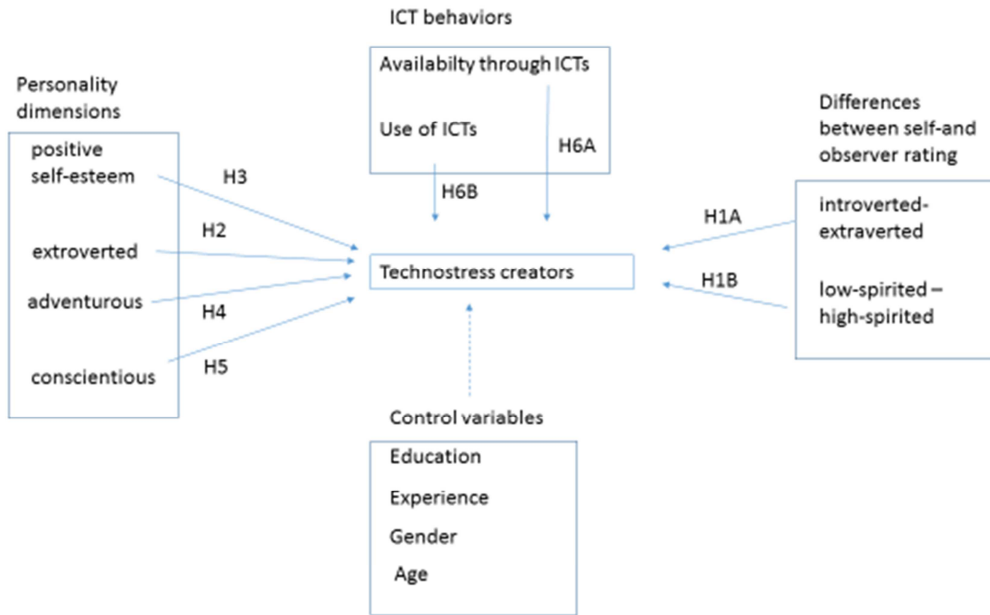
Figure 1 Research model

Table 1 Ordered logistic regression

	Dependent Variable				
	Techno - invasion	Techno - insecurit y	Techno - insecurit y	Techno -overload	Techno - overload
	(1)	(2)	(3)	(4)	(5)
Independent variable					
Availability through ICT	1.13*				
Use of ICT	0.78**				
The difference between self- ratings and observers ratings low-	6.04**				

spirited-high-spirited dimension					
The difference between self-ratings and observer ratings in the introvert-extrovert dimension	0.30*				
Low-high self-esteem dimension (self-rating)		0.30***			
Laissezfaire – conscientious dimension (self-rating)		2.47*			
Low-high self-esteem dimension (observer rating)			0.26*		
Viligant – trustful dimension dimension (observer rating)			2.10		
Laissez-faire – conscientious dimension (observer rating)			1.69		
Introverted - extroverted dimension (self-rating)				2.04*	
Self-effacing – assertive dimension (self-rating)				0.50*	
Introverted – extroverted dimension (observer rating)					2.77*
Prudent – adventurous dimension (observer rating)					0.42*
Gender (Male)	0.10**				
Education	0.15**	0.23*			
Prob > chi2	2.75e-05	0.000238	0.0428	0.0369	0.0494