The Relationship between Psychological, Physiological, and Behavioral Strain towards Technostress

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Technological stressors cause psychological and behavioral strains (Maier et al. 2014) and lead to physiological responses (Riedl et al. 2012). Technostress research distinguishes between behavioral strains which refer to behavioral reactions such as productivity and performance and psychological strains (PSS) which are emotional reactions such as satisfaction and emotional exhaustion (Tarafdar et al. 2010). Riedl et al. (2012) also claim that individuals respond to stressors in a physiological way. Physiological strains (PHS) include among others bodily reactions such as a changed heart rate (HR) as well as changes in the skin conductance responses (SCR), and in the cortisol levels (Hellhammer and Schubert 2011).

Different types of strains have been detected as a result of being exposed to technology stressors, however their antecedents as well as their consequences differ. Stressors that influence PSS are not the same as the stressors which influence PHS (Lazarus 1993). For instance, a malfunction of the internet leads to psychological strain in terms of dissatisfaction but might not change the HR or the blood pressure. Furthermore, the relationship between PHS and PSS remains unclear. Therefore, we follow the research question how PHS influences behavioral strains and how PHS differs from PSS and vice versa.

In technostress research, the influence of PSS on behavioral strains is well established (Tarafdar et al. 2010). Hence, we assume that behavioral strain is negatively influenced by PSS, because the negative emotional reactions also have a negative effect on the behavior, for example in terms of poorer performance, (Proposition 1). In contrast to that, the relationship between PHS and behavioral strain is not well studied. According to the general adaptation syndrome (Selye 1946) stressors lead to an exhaustion of the physiological resources that weaken the bodily functions. Based on this physiological exhaustion, we assume that PHS also negatively influences the behavioral strains (Proposition 2). Furthermore, divergences between psychological and physiological strains have been acknowledged in psychological literature (Hellhammer and Schubert 2011). Several studies reveal evidence for the relationship between psychological and physiological strain, whereas, on the contrary, some investigations failed to prove a relation between PSS and PHS (Hellhammer and Schubert 2011; Hjortskov et al. 2004). The reason for this is the different on and offsets of the reaction as well as dynamic of the response. Psychological strains occur faster than physiological strains and are more dynamic (Schlotz et al. 2008). Because of the temporal delay between PSS and PHS and the different dynamic response times, we assume the existence of divergences between PSS and PHS (Proposition 3). The proposed research model is displayed in Figure 1.

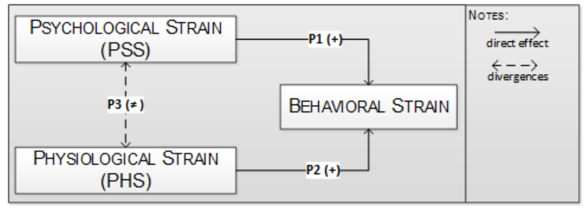

Figure 1: Relationship between psychological, physiological, and behavioral strain

To test these propositions we aim to realize a laboratory experiment, in which subjects working with an IT system are influenced by a computer freezing. The experiment follows a one factor (stressor, non stressor) between subject design and contains four tasks which have to be operated with MS SharePoint. While working on the tasks the subjects are exposed to a computer freeze. During the experiment, we attempt to measure PHS in a multivariate manner by measuring SCR, HR, blood pressure as well as eye movement in order to avoid a single item measurement and a mono-operationalized bias. PSS is measured by the psychological strain construct based on Ayyagari et al. (2011) and behavioral strain in terms of end-user performance is captured by the task results and by the processing time of each task. We expect to find differences in the extent between PSS and PHS as well as a different impact on behavioral strains. By examining the influence of PHS on behavioral strains, we attempt to contribute to technostress literature by showing that not only psychological strains but also physiological strains towards technological stressors influence the behavior of technology end-users. Furthermore, we contribute to technostress literature by investigating the divergence between PSS and PHS and its consequences.

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