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Christoph Weinert

Christian Maier

Sven Laumer

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Why are teleworkers stressed? An empirical analysis of the causes of telework-enabled stress

Christoph Weinert, Christian Maier, and Sven Laumer

University of Bamberg, Bamberg, Germany

{christop.weinert,christian.maier,sven.laumer}@uni-bamberg.de

Abstract. Despite the wide dissemination and acceptance of teleworking, there are negative effects for employees. Literature shows that these negative effects of telework lead to undesired outcomes for teleworkers such as telework-exhaustion. The present research, however, goes one step further by identifying three significant telework-characteristics and hypothesising the relationship between telework-characteristics and telework-enabled stressors. By doing so, one can understand the reason why telework-enabled stressors are perceived and identify the source of these stressors, which can then be counteracted to maintain the advantages of teleworking. Therefore, this research investigates the influence of the following telework-characteristics - information undersupply, autonomy, and isolation - on telework-enabled stressors and accordingly on telework-exhaustion and on the intention to continue teleworking. Results of an analysis on 310 teleworkers show that telework-characteristics influence telework-enabled stressors and accordingly increase the extent of telework-exhaustion and decrease the intention to continue teleworking.

Keywords: telework characteristics, isolation, information undersupply, autonomy, telework-exhaustion, intention to continue telework

1 Introduction

Organisations are increasing their numbers in regards to employed teleworkers. This type of work arrangement reflects that employees use technology to work from home and away from the main workplace for a portion of their working hours [1]. Teleworking has become a popular way to work; around twelve percent of all employees in the United States and the European Union are teleworkers [2]. The opportunity to work from home creates financial and productivity advantages for individuals as well as advantages in regards to work autonomy, mobility, and job satisfaction [3]. Nonetheless, teleworking also has negative effects on employees. One possible harmful effect of telework is stress [4]. The antecedents and consequences of stress have been examined in different working environments such as in traditional offices and virtual teams [5, 6]. Teleworkers are exposed to different environmental characteristics than workers are in the common working place, because they work from home through technology, such that the source of stress might differ. For example, characteristics of

teleworking might lead to undesired outcomes and cause difficulties, because teleworkers are then less productive and less satisfied.

In order to provide the fundamentals to mitigating the negative consequences of telework in terms of telework-enabled stress, the present research aims to identify the characteristics of telework that induce stress among teleworkers. Hence, the present research intends to investigate the influence of specific telework-characteristics on telework-enabled stressors and the subsequent effect on telework-exhaustion and intention to continue teleworking. Therefore, the research question is:

How do telework-characteristics influence telework-enabled stressors, telework-exhaustion, and the intention to continue teleworking?

To answer this research question, we build on a characteristic-stressor-strain framework, we consider three major telework-characteristics (information undersupply, isolation, and autonomy) and we hypothesise an effect on telework-enabled stressors (work overload and work-home conflict) and strains (telework-exhaustion and intention to continue teleworking). The remainder of the article is as follows. While explaining the theoretical background, we first develop the hypotheses. We then describe the methodology of the article and subsequently we present the research results. Eventually, we demonstrate the contribution of this article and consider implications as well as the future research.

2 Theoretical Background and Hypotheses Development

2.1 Characteristic-Stressor-Strain Framework

Person-environment fit theory [7] posits that there is a balance between individuals and their environment. People and their environment are in balance when the values and the abilities of these people meet the supplies and demands of the environment. Otherwise, the equilibrium is disrupted, which causes stress [8]. This phenomenon is conceptualised by a characteristic-stressor-strain framework [9] (see Fig. 1). *Characteristics* are situational factors, which act independently as a source of stress. Situations are not in themselves stressful, but characteristics, which can be context-, task- and role-related might create the perceived stimulus factor [10]. Characteristics lead to *stressors* which are stimuli encountered by the individual [8, 11]. Due to the occurrence of situational characteristics, stressors might be capable of producing strain, which is the reaction towards the stressor [11]. *Strain* can psychologically be defined as an emotional reaction to the encountered stimuli such as exhaustion [8] and behaviourally be considered as the negative behavioural reaction towards the stressor such as turnover intention [12].

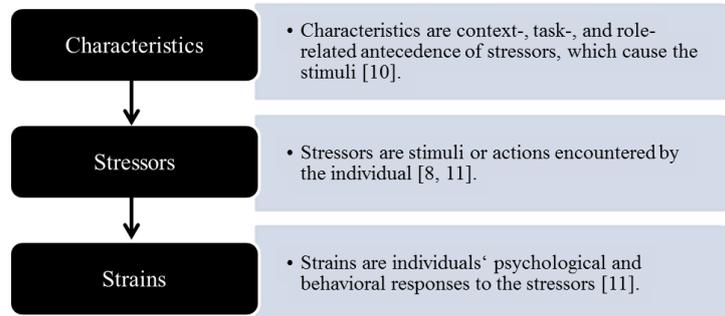


Fig. 1. Characteristics, stressors, strain relationship

2.2 Hypotheses Development

Several investigations show that telework-enabled stressors increase exhaustion and turnover intention [6, 13, 14]. However, less is known about the source of stressors in the teleworking context in terms of telework-characteristics. According to Parasuraman and Alutto [10], context-, task-, and role-related characteristics are responsible for perceiving stimuli. Because teleworkers work in a different environment than traditional office workers, we assume that this unique group of ICT-driven personnel is exposed to different characteristics than those who work in traditional offices. We call these telework-characteristics. The influence of these telework-characteristics on telework-enabled stressors is hypothesised in the following as well as its influence on telework-exhaustion and the intention to continue teleworking.

The Influence of Telework-exhaustion on Intention to Continue Teleworking.

Central aspects in telework literature include exhaustion and turnover intention [6, 13–15]. Exhaustion is linked to turnover intention [16]. Golden [15] shows that work exhaustion significantly influences turnover intentions in the teleworking context. Teleworkers try to overcome the feelings of fatigue, tiredness, or being stressed out caused from teleworking and accordingly develop intentions to stop teleworking. Therefore, we assume:

H1: Telework-exhaustion negatively influences the intention to continue teleworking among teleworkers.

Telework-enabled Stressors and its Consequences. Work stress literature reveals that, among others, work overload, work-home conflict and role ambiguity lead to work exhaustion [16, 17]. By looking into telework literature we identify several articles, which discuss these stressors in the telework context, as well [6, 18]. Based on this, we focus on them in the telework context and hypothesise their impact on telework-exhaustion and the intention to continue teleworking.

Work overload, which is defined as the perception that the amount of work exceeds an individual's capability [5, 16] is a known contributing factor to work exhaustion

and turnover intention [16]. We acknowledge that turnover intention, in general, is an intention to stop doing something, which is why we substitute the phrase turnover intention in the telework context with a lowered intention to continue teleworking. Work overload is also considered as a stressor within the telework context [18]. The overburden of work might increase an individual's exhaustion and subsequently this negative perception might influence an individual to stop teleworking. Hence, we assume that:

H2: Work overload (a) positively influences telework-exhaustion and (b) negatively influences the intention to continue teleworking among teleworkers.

In addition, work-home conflict is discussed in the telework literature and due to the blurring of boundaries between work and home it is considered as a negative consequence of teleworking [19–21]. It is also a stimulus as well as an antecedent of exhaustion [14]. Teleworkers work from home while occupying a private space, which can lead to tension between work and family. This might lead to exhaustion and subsequently might influence an individual to stop teleworking. Therefore, we assume that:

H3: Work-home conflict (a) positively influences telework-exhaustion and (b) negatively influences the intention to continue teleworking among teleworkers.

In the context of teleworking, role ambiguity is understood as the degree to which an employee lacks clear information regarding one's role [22]. Because teleworkers work from home, they are uncertain what to focus on – their responsibilities as a family member or their responsibilities as an employee. This high amount of role ambiguity causes an additional mental and emotional feeling which increases exhaustion [6]. Due to the negative perception of role ambiguity, people might aim to avoid teleworking and go back to the traditional work place. Hence, we assume that:

H4: Role ambiguity (a) positively influences telework-exhaustion and (b) negatively influences the intention to continue teleworking among teleworkers.

Telework-Characteristics: Antecedents of Telework-enabled Stressors. The telework environment differs from the environment in the traditional offices. The communication and information exchange is different, which is considered to be a key challenge in the telework domain [23]. Isolation is also seen throughout the literature as a key factor of distributed work and is the most cited negative characteristics of teleworking [13, 24, 25]. In addition, one of the most positive and favourable telework-characteristic might be the effect of perceived autonomy [21]. Because these are seen in prior literature as key characteristics of telework [13, 21, 23], we investigate the influence of information undersupply, isolation, and autonomy on stressors. Therefore, the influence of these telework-characteristics on work overload, work-home conflict, and role ambiguity is subsequently hypothesised.

Autonomy due to Teleworking. Teleworking enhances the perceived autonomy by providing people with a choice regarding location and scheduling [6, 21, 26]. Spector

[27] defines autonomy as the extent to which individuals can “*structure and control how and when they do their particular job tasks*” [p. 1006]. Several studies state that autonomy increases because teleworkers have higher degrees of freedom in how to structure their work [21].

Literature focusing on work exhaustion states that job autonomy influences work overload [16, 17]. Autonomy allows teleworkers the flexibility of rescheduling their work to do other aspects of their lives as needed, which alleviates the negative implication of high workload. Teleworkers are able to conduct work tasks better because they can work along the lines of their own preferences. They are more involved and dedicated to their job because of a greater autonomy [6], which might reduce the high workload. Overall, the autonomy due to teleworking equips teleworkers with a higher amount of independency. Choices regarding scheduling and location of work enables the teleworker to handle the work overload to a better extent. Hence, we hypothesise that:

H5a: The higher the autonomy due to teleworking is, the lower the work overload among teleworkers is perceived.

The disposal of freedom, independence and discretion in scheduling the work negatively influences the work-home conflict [17]. One reason for work-home conflict is the work time and schedule conflict. The time conflict between work and home is caused by time pressure at work and therefore, in the work role, which makes it difficult to meet the obligations of the home and family role [21, 28]. The freedom in scheduling the work may influence this conflict by working when the obligations in the family role are low. For example, teleworkers can fulfil their duties at home during the afternoon when the children are at home and work in the night when the children are in bed, such that we assume:

H5b: The higher the autonomy due to teleworking is, the lower the work-home conflict among teleworkers is perceived.

The already discussed autonomy and flexibility of telework also helps to cope with the ambiguity surrounding employees' role, which might lead to less ambiguity than they would perceive without this autonomy [29], hence, the more autonomous the role is, the less the individuals perceive ambiguity in the different facets between these roles [30]. The autonomy due to teleworking enables teleworkers to cope with the ambiguity surrounding different roles, which might negatively influence their role ambiguity. Therefore, we assume that:

H5c: The higher the autonomy due to teleworking is, the lower the role ambiguity among teleworkers is perceived.

Information Undersupply due to Teleworking. Information undersupply reflects “*the perception that less than the desired amount of job-related information is being received*” [31, p. 1980]. Communication and thus information are commonly considered as a key challenge in the telework domain [23]. Working in traditional office structures makes it easy to develop and maintain strong, positive, and deep ties between employees and co-workers. The disruption of these ties due to teleworking makes it more difficult to transmit information [32]. Furthermore, the spatial distance to col-

leagues at work might be translated into psychological distance, which might lead to an “*out of sight, out of mind*” attitude and influences the information transaction negatively [33].

Difficulties with the transmission of information and an out of mind attitude [32, 33] lead to the fact that teleworkers receive a less than desired amount of information. Office gossip and work-related spontaneous discussions are information, which are difficult to transmit through telecommunication [34, 35]. Teleworkers also miss spontaneous and informal learning, which cannot be scheduled. Skills and abilities are incidentally learned at the workplace by informal and spontaneous communication, most of the time by face-to-face communication, and by observing co-workers [36]. Consequently, teleworkers who work technology-mediated from home do not experience this informal information and the implicit learning opportunities [25] such that they have to put more effort into their work. Hence, we assume that:

H6a: The higher the information undersupply due to teleworking is, the higher the work overload among teleworkers is perceived.

The dangers of getting too little information also leads to dissatisfaction and perceptions of decreased effectiveness [31]. As a result, teleworkers may want to prove themselves, which results in longer working hours [37] such that more time is spent for work and less for family. Consequently, work-home conflict is caused by the amount and frequency of overtime induced by the information undersupply [28, 38]. Hence, we assume that:

H6b: The higher the information undersupply due to teleworking is, the higher the work-home conflict among teleworkers is perceived.

Information undersupply also increases role ambiguity among teleworkers [6]. Role ambiguity refers to a lack of clear information regarding the expectations and the defined situational roles [22, 39]. Because teleworkers do not receive the desired amount of information from their co-workers, they do not exactly know what is expected of them. The lack of information leads to an undefined role. Therefore, we hypothesizes that:

H6c: The higher the information undersupply due to teleworking is, the higher the role ambiguity among teleworkers is perceived.

Isolation due to Teleworking. One of the most cited negative characteristics of teleworking is isolation (e.g., [13, 20, 24]). It is experienced by teleworkers, because they not part of the physical human network in the traditional office [40]. Isolation is defined as “*the feeling that one is cut off from others and it occurs when the desire for support, understanding, and other social and emotional aspects of interaction are not met*” [13, p. 1412].

Time pressure and tied deadlines are seen as a source of work overload [12]. To meet deadlines and work effectively under pressure people draw on social support from co-workers at the workplace, who give sympathy and understanding or help out with problems [41]. However, isolation due to teleworking cuts down the relationships with co-workers and friends and in turn prevents emotional support from fellow

workers to cope with the difficult situations [20]. Furthermore, teleworking negatively influences social support received from co-workers, help desk or friends at the workplace because of a bad relationship quality and the dependability on electronic communication [6]. Therefore, we hypothesise that:

H7a: The higher the isolation due to teleworking is, the higher the work overload among teleworkers is perceived.

Isolation due to teleworking causes teleworkers to possibly be overlooked, forgotten, or rejected when rewards and promotions are meted out [40] and moreover, teleworkers might seem invisible or cut-off from their other office-workers [1, 6, 13]. These disregards and the feeling of being overlooked leads teleworkers to the situation that they may want to prove themselves, and hence, work longer hours [37], which blur the boundaries between the work and the home domain. Time spent on activities in the work role cannot be spent on activities within the family role [38]. Therefore, we hypothesise that:

H7b: The higher the isolation due to teleworking is, the higher the work-home conflict among teleworkers is perceived.

Teleworking induced isolation leads to cut-offs from co-workers [13, 25], such that they have no defined role within their team. Teleworkers do not know what their responsibilities are as they are not part of the social network within the conventional work place [40]. Teleworkers do not know whether they should try to solve the problem of isolation by seeking social support and understanding or rather focus solely on their work tasks. Hence, we assume that:

H7c: The higher the isolation due to teleworking is, the higher the role ambiguity among teleworkers is perceived.

The overall research model summarising the developed hypotheses is illustrated in Fig. 2. In the following section, the research methodology to validate the proposed model will be described.

3 Research Methodology: Design and Measurement

In this section, we describe our research design and the data collection process to validate the research model. We focus on the study procedure and present the measurement model used.

In order to validate the research model, we captured data through an online survey. Our institute cooperates with a global career portal and conducts studies in order to capture the status quo of recruitment every year. As part of one of these studies, the hyperlink to the questionnaire was sent out to the members of the online career portal. By doing so, we were able to focus on participants who are presently employed. We based our research on the answers of 310 individuals, because this dataset does not contain missing values and includes only subjects who at least telework partially.

Because negative perceptions such as telework-exhaustion might cause skewed distributions [42]; and since partial least square (PLS) does not require normally distributed

data (compared to covariance-based structural equation modeling), we use SmartPLS 3.0 [43]. Additionally we utilize SPSS 22.0.

The demographic characteristics, the extent of their telework usage behaviour, and amount of colleagues who work at the office are represented in Table 1. In order to measure the proposed variables we use validated constructs identified in the literature and adapt the questions to the teleworking context. The used measurement items, scales, and the origin of the constructs are displayed in Table 2.

Table 1. Demographics and telework usage

Telework usage		Colleagues in the office		Demographics		
Never	0.0%	None	0.0%	Gender	Female	29.6%
Rarely	35.2%	At least one	21.9%		Male	70.4%
Sometimes	27.4%	Some	31.6%	Age	<19	0.0%
Most of the time	15.5%	An extreme amount	34.5%		19-24	1.6%
Very often	21.9%	All	11.9%		25-34	22.1%
					35-44	29.5%
					45-54	34.9%
					>54	12.0%

4 Research Results

4.1 Common Method Bias

As self-reported data might imply common method bias (CMB) [44] we perform a statistical procedure to reveal the extent of CMB. Therefore we enter a CMB factor in our PLS model [45], which includes every indicator of the origin model, and transfer the remaining factors in single-item constructs. By comparing the ratio of R^2 with this factor to R^2 without this factor, we got a ratio of 1:96. When we compare this with ratios reported in other prior research articles, we can state that we do not observe any sign of CMB influence [46]. In addition, the results of the Harman's single factor test [47] also show that one factor does not explain the majority of the variance in the model, which confirms that the CMB is of no great concern.

4.2 Measurement Model

In order to provide a valid and reliable measurement model for testing our hypotheses we first assessed the measurement model used. As all constructs are measured with reflective indicators we validate the measurement model by focusing on content validity, indicator reliability, construct reliability, and discriminant validity [48].

Content validity: To ensure content validity, we used items that have been used in prior research articles (see Table 2.) and discussed each item within our project team and with the managers of our cooperation partner.

Table 2. Measurement items and loadings

Construct		Wording	Loading	Reference
Information undersupply ¹	IU1	When I work at home (telework), I receive too little information from my colleagues in the office of my employer.	0.928	O'Reilly [31]
	IU2	When I work at home (telework), it is difficult to receive relevant information from my colleagues in the office of my employer.	0.941	
	IU3	During my time at home (telework), the amount of information I receive from my colleagues in the office is very low.	0.918	
Autonomy ¹	A1	When I work at home (telework), I am allowed to decide how to go about getting my task accomplished.	0.904	Breugh [49]
	A2	When I work at home (telework), I am free to choose the method to use in carrying out my work.	0.898	
	A3	When I work at home (telework), I have the control over the scheduling of my work.	0.912	
	A4	When I work at home (telework), I have some control over the sequencing of my work activities (when I do what).	0.879	
Isolation ¹	I1	I feel less integrated in my team at work.	0.881	Gil-de-Zúñiga [50]
	I2	I feel poorly informed about the relevant issues from my team at work.	0.879	
	I3	It is more difficult for me to use corporate services or utilities at home (telework).	0.795	
Work overload ²	WO1	Working at home (telework) creates a variety of problems, number of requests and complaints in my job, which would not occur without teleworking.	0.879	Ayyagari et al. [8]
	WO2	I feel rushed through the work at home (telework).	0.958	
	WO3	I feel pressured by working at home (telework).	0.942	
Work-home conflict ²	WHC1	By working at home (telework), boundaries blur between my work and my private life.	0.804	
	WHC2	By working at home (telework), conflicts arise with my personal responsibilities.	0.896	
	WHC3	I do not get all the tasks done at home (telework) because I need materials from the office of my employer.	0.810	
Role ambiguity ²	RA1	I am unsure whether I should deal with personal problems or with my work activities during my work at home (telework).	0.877	
	RA2	I am unsure what to prioritize: solving personal or work related problems during my work at home (telework).	0.907	
	RA3	I can NOT allocate time properly for my work activities because I have to spent time on personal activities during my work at home (telework).	0.937	
	RA4	Time spent resolving personal problems takes time away from fulfilling my tasks successfully during my work at home (telework).	0.881	
Telework-exhaustion ²	Exh1	I feel exhausted from working at home (telework).	0.873	
	Exh2	I feel tired from working at home (telework).	0.940	
	Exh3	Working all day at home (telework) is a strain for me.	0.934	
	Exh4	I feel burned out from working at home (telework).	0.955	
Intention to continue teleworking ²	Int1	I intend to continue working at home (telework) rather than working at the office of my employer.	0.794	
	Int2	My intentions are to continue working at home (telework) than working from other locations of my employer.	0.781	
	Int3	If I could, I would like to discontinue my work at home (telework).*	0.819	
Telework usage ³		How often do you work at home?		
Amount of colleagues in the office ³		I work at home and ___ of my colleagues work in the office of my employer		

Note: ¹ 5-point Likert scale from strongly agree (1) to strongly disagree (5); ² 7-point Likert scale from strongly agree (1) to strongly disagree (7); ³ 5-point Likert scale from never (1) to very often (5); ⁴ 5-point Likert scale from none (1) to all (5)

Indicator reliability: This reflects the rate of the variance of an indicator that comes from the latent variables. To ensure that 50 percent or more of the variance is explained by the indicators, each value should be at least 0.707 [52]. Table 3 shows that this condition is fulfilled and moreover, each loading has a significance level of at least 0.001.

Construct reliability: To determine construct quality, we use composite reliability, which should be at least 0.7, and average variance extracted (AVE), which has to be at least 0.5 [53]. Both criteria are fulfilled (Table 3).

Discriminant validity: This reflects the extent to which items differ from others [54]. The square root of AVE should be greater than the corresponding construct correlations [53, 55]. Table 3 shows that the square root of the values are greater than the corresponding correlations between the constructs. Hence, our used measurement model is valid.

Table 3. Measurement model

	Mean	SD	AVE	CR	1	2	3	4	5	6	7	8
1 Information undersupply ¹	3.49	1.11	0.863	0.950	0.929							
2 Isolation ¹	3.65	1.06	0.727	0.889	0.692	0.853						
3 Autonomy ¹	2.20	1.07	0.806	0.943	-0.083	-0.091	0.898					
4 Work overload ²	5.30	1.60	0.859	0.948	0.571	0.625	-0.214	0.927				
5 Work-home conflict ²	4.42	1.51	0.701	0.875	0.577	0.629	-0.099	0.830	0.837			
6 Role ambiguity ²	5.35	1.53	0.811	0.945	0.534	0.552	-0.134	0.672	0.699	0.901		
7 Telework-exhaustion ²	5.32	1.47	0.857	0.960	0.621	0.609	-0.190	0.739	0.687	0.593	0.926	
8 Intention to continue teleworking ²	3.17	1.35	0.634	0.839	-0.390	-0.321	0.181	-0.5126	-0.437	-0.398	-0.553	0.916

Note: square root of AVE listed on the diagonal; ¹)5-point Likert scale strongly agree (1) to strongly disagree (5); ²) 7-point Likert scale strongly agree (1) to strongly disagree (7)

4.3 Structural Model

To evaluate the proposed research model, we use the coefficient of determination (R^2) and significance levels of each path coefficient. The results are illustrated in Fig. 2, which shows that telework-characteristics have a significant influence on work overload and role ambiguity. Furthermore, information undersupply and isolation have an impact on work-home conflict. Moreover, the telework stressors are significant contributing factors for telework-exhaustion, whereas only work overload negatively influences intention to continue teleworking. Telework-exhaustion itself is a contributing factor for intention to continue teleworking.

With respect to R^2 , telework-characteristics explain 45.1 percent of the variance of work overload, 43.5 percent of work-home conflict, 35.5 percent of role ambiguity, and 33.3 percent of intention to continue teleworking.

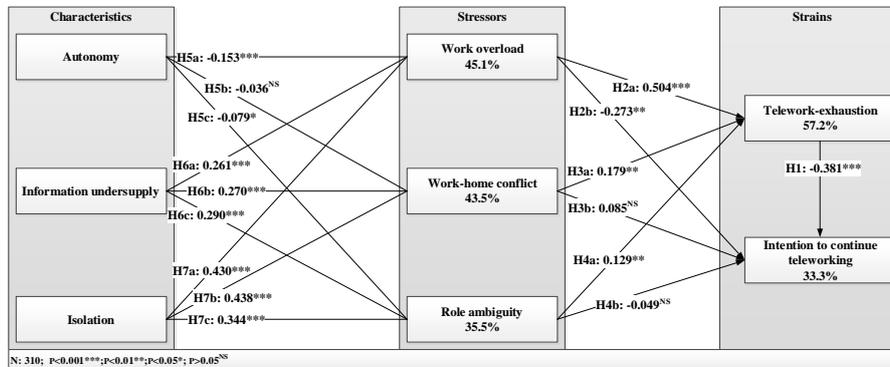


Fig. 2. Structural model

4.4 Post-Hoc Analyses: Strength of Effect and Mediation Effects

To determine the effect size of the independent variables we calculated the f^2 values [56] displayed in Appendix, Table 2. The main effect on telework-exhaustion is demonstrated by work overload, whereas telework-exhaustion has the strongest effect on intention to continue teleworking. In the case of work overload, isolation explains the highest portion of the variance. The same goes for work-home conflict, which is also most effected by isolation. The three telework-characteristics indicate a low ef-

fect on role ambiguity. Regarding the mediation effects, results indicate that the telework-enabled stressors work as a mediator between information undersupply and isolation on intention to continue teleworking and as a mediator between all telework-characteristics and telework-exhaustion, as well (see Appendix, Table 3). Concerning telework-stressors, the mediation analysis shows that all telework-enabled stressors have an indirect effect on the intention to continue teleworking through telework-exhaustion. The results of the multiple mediation analysis indicate that all characteristics have an indirect effect on intention to continue teleworking through the telework-enabled stressors and telework-exhaustion except autonomy, which is not mediated by work-home-conflict and telework-exhaustion on intention to continue teleworking.

5 Discussion, Implications, and Future Research

The present research aims to investigate the influences of telework-characteristics on telework-enabled stressors, and the accordingly increasing extent of telework-exhaustion and decreasing intention to continue teleworking. Therefore, we draw on the well-established relations between stressors and strain in the telework literature. More importantly, we go beyond the traditional telework research by identifying three significant telework-characteristics and hypothesise the relation between telework-characteristics and telework-enabled stressors in order to understand the reason why telework-enabled stressors are perceived and to identify the source which should be counteracted to maintain the advantages of teleworking.

The proposed research model argues that specific telework-characteristics influence telework-enabled stressors. Findings show that the telework-characteristics isolation and information undersupply are significantly predictors of work overload, work-home conflict, and role ambiguity in the teleworking context. Autonomy on the other hand significantly reduces work overload and role ambiguity. By identifying, hypothesising and evaluating the relationship between telework-characteristics on telework-enabled stressor we extend existing IS as well as psychological literature regarding teleworking [2, 6, 13] which has focused so far on telework-stressors and its consequences. With our approach we go beyond traditional telework research by identifying those characteristics of telework that are responsible for the occurrence of stressors and that might be addressed to reduce the negative consequences of telework.

The research model proposes that autonomy negatively influences the three telework-stressors. Results demonstrate that autonomy significantly reduces work overload and role ambiguity. The effect size analysis shows that autonomy has only an effect on work overload and the mediation test indicates an indirect effect on telework-exhaustion. All in all, autonomy is the least significant telework-characteristic and it does not reduce work-home-conflict nor role ambiguity but does reduce the perception of work overload and indirectly influences telework-exhaustion. By showing that benefits of teleworking in terms of autonomy reduce telework-enabled stressors and telework-exhaustion we extend the finding by Sardeshmukh et al. [6] and Gajendran and Harrison [21] who identified autonomy as a positive effect of teleworking but did not examine its effect of telework-enabled stressors nor its consequences.

Furthermore, the influence of the telework-characteristics isolation and information undersupply on work-home conflict is contradictory to the findings of Golden et al. [15], who reveal that the extent of teleworking reduces work-home conflict. The present research demonstrates that isolation and information undersupply due to teleworking cause work-home conflict and show that isolation is the most substantial influential factor. These findings indicate that not the extent of teleworking leads to negative effects such as work-home conflict but rather the isolation from co-workers and the lack of information are responsible for the blurring of boundaries between work and home, since individuals have to put more efforts into addressing these shortcomings of telework. With this knowledge, it is important not to reduce the extent of teleworking but rather support and enhance communication and information exchange.

In addition, Sardeshmukh et al. [6] claim that telework increases role ambiguity. By demonstrating that role ambiguity is significantly influenced by autonomy, information undersupply, and isolation, we specify the findings of Sardeshmukh et al. [6] as we identify constructs that should be counteracted in order to lower role ambiguity in the context of teleworking.

By showing that telework-exhaustion and work overload negatively influence the intention to continue teleworking directly and by demonstrating that all three telework-enabled stressors indirectly influence the intention to continue teleworking we reveal that the large advantages of teleworking are threatened. These findings contribute to literature by showing that telework-exhaustion as well as work overload leads to the alleviation of practicing telework [6, 14, 21, 57].

The large amount of organisations (88%) who offer their employees the opportunity to telework and the impressive number of teleworkers (12%) in Europe and the USA [2, 58] emphasise the practical importance of this topic. Our findings show that teleworking also has a negative side for employees, because it causes exhaustion and decreases the intention to continue teleworking, which should enhance organisations to think about the efficiency of teleworking. The present research identifies the source of telework-enabled stressors in terms of telework-characteristic. Findings show that organisations should increase the autonomy of teleworkers in order to reduce the perception of telework-enabled stressors and its resulting exhaustion and intention to stop teleworking. Firms should also find mechanisms to lower the isolation of teleworkers and increase the information exchange between teleworkers and their colleagues in the common work place to counteract the telework-characteristics which are responsible for the perception of telework-enabled stressors.

Just like in every empirical research study, issues can be found, causing limitations to the results. The model comprises just a specific choice of the major telework-enabled stressors as well as telework-characteristics. There might be more influential factors caused by teleworking and more specific telework-characteristics, which are not considered within the present research. Because we recruited a heterogeneous group of participants we are not able to control the external confounding variables such as the number of children at home, technology used, kind of task work at home, etc. Future research should identify more telework-characteristics and include more telework-enabled stressors, since we only focused on the most important ones. In addition,

other psychological strain variables such as telework-satisfaction or telework-productivity should be included as well. Further research should be analysed to find which mechanism can be taken into consideration in order to reduce the negative telework-characteristic and support the positive ones, such as the usage of social media implications or the implementation of enterprise content management system.

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Note: This paper contains an online appendix which is available at: isdl.uni-bamberg.de/online-appendix/appendix-why-are-teleworkers-stressed.pdf