

## Daily synchronous work interruptions: a social-exchange perspective

Leon Toebben<sup>a</sup>, Wilken Wehr<sup>b</sup>, Julia Iser-Potempa<sup>a</sup> and Sabine Sonnentag<sup>a</sup>

<sup>a</sup>Department of Psychology, University of Mannheim, Mannheim, Germany; <sup>b</sup>Department of Work and Social Psychology, Maastricht University, Maastricht, Germany

### ABSTRACT

Although work interruptions inherently involve social interactions, past research largely neglected the social aspects of interruptions. To better understand the social component of interruptions, our study focuses on the social exchanges between interrupters and interruptees. To do so, this study distinguishes between two interruption categories: interruptions serving to benefit employees who interrupt and interruptions serving to benefit employees who are interrupted. Focusing on interruptions via synchronous communication channels (face-to-face interactions and phone calls), we examined the implications of these two interruption categories for interrupted employees' job satisfaction through three mechanisms (interpersonal citizenship behaviour, work engagement, and cognitive exhaustion). We analysed data from a two-week diary study with two daily measurements ( $N = 108$  employees;  $n = 799$  days). Multilevel path modelling showed that interruptions serving to benefit interrupting employees were positively related to interrupted employees' interpersonal citizenship behaviour. Moreover, interruptions serving to benefit interrupted employees were positively related to interrupted employees' work engagement. Both interruption categories were unrelated to cognitive exhaustion. The interruption categories were indirectly positively related to interrupted employees' job satisfaction via interpersonal citizenship behaviour and work engagement as mechanisms. Altogether, we offer a new perspective on interruptions, highlighting that the inherent social exchanges can benefit interrupted employees.

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Work interruptions – unexpected suspensions of the interrupted employee's progress on ongoing work tasks (Puranik et al., 2020) – are widespread in modern workplaces (e.g., Baethge et al., 2015; Leroy et al., 2020). According to a recent review by Puranik et al. (2020), “past research has generally stressed that work interruptions tend to harm interrupted individuals' performance and well-being” (p. 20). This summary is not surprising given that the majority of research focused on how interruptions disrupt interruptees' goal progress (Puranik et al., 2020). As a result, researchers commonly concluded that interruptions lead to negative outcomes, such as exhaustion (e.g., Freeman & Muraven, 2010) and reduced performance on the interrupted task (Altmann et al., 2014; Hodgetts & Jones, 2006; for an exception; Zijlstra et al., 1999).

However, especially in recent years, researchers started adopting a more fine-grained perspective on work interruptions (e.g., Bush et al., 2021; Puranik et al., 2021). Researchers uncovered that interruptions do not only disrupt interruptees' goal progress but also imply other aspects that are less aversive – or even beneficial. Specifically, while interruptions disrupt interruptees' progress on interrupted tasks, interruptions may still allow interruptees to progress on other goals at work, such as to accomplish interrupting tasks (Sonnentag et al., 2018) or to satisfy belongingness needs (Puranik et al., 2021). In addition, researchers also recognized that a unidimensional


conceptualization cannot adequately capture what happens during interruptions (e.g., Bush et al., 2021). Subsequently, researchers offered two-dimensional conceptualizations of interruptions, differentiating between interruption categories based on the content of the interruptions. Broadly summarized, these conceptualizations distinguished interruptions by whether or not the interrupting content is relevant to the interruptees' work tasks. While interruptions irrelevant to interruptees' work tasks mostly negatively affected interruptees, interruptions relevant to interruptees' work tasks were found to be less aversive or even beneficial for interruptees (Addas & Pinsonneault, 2018; Bush et al., 2021; Parker et al., 2024).

Despite these advancements, current conceptualizations of interruptions focus on how interruptions relate to interruptees' work tasks but rarely address the social interactions with the employees who initiated the interruptions (i.e., interrupters). This is a major drawback because the social interactions with the interrupters are a key aspect of interruptions (Jett & George, 2003; Puranik et al., 2021). In fact, interruptions are important facilitators of social interactions at work. Especially for interruptions via synchronous communication channels, such as face-to-face interactions and phone calls, the inherent social-interaction component is important because synchronous channels allow to exchange rich social cues (Wang et al., 2020). Because interruptions via synchronous channels are spontaneous and often involve

**CONTACT** Leon Toebben  [toebben@uni-mannheim.de](mailto:toebben@uni-mannheim.de)

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Current affiliation for Leon Toebben is: O+P Consult, Mannheim, Germany.

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conversations among a small group of employees (Puranik et al., 2020), interruptions may be valuable tools for authentic and private social interactions that meet employees' immediate needs. Moreover, interruptions offer greater spontaneity compared to other opportunities for social interactions at work, such as scheduled breaks and meetings. Because scheduled breaks and meetings require advance planning, they cannot address employees' spontaneous needs (Geimer et al., 2015; Lyubukh et al., 2022). In addition, while meetings are typically task-focused (Allen & Lehmann-Willenbrock, 2023), breaks are most effective when they involve task-unrelated conversations (von Dreden & Binnewies, 2017). In contrast, because interruptions via synchronous communication channels often do not have a pre-defined topic, they may facilitate discussions on various subjects.

As social interactions typically facilitate resource exchanges between employees (Cropanzano et al., 2017), interruptions may involve a give-and-take between interrupter and interruptee. Focusing on the social exchanges with the interrupter offers a new perspective on work interruptions, challenging previous assumptions that interruptions occur at the expense of interruptees (Käser et al., 2013; Romero et al., 2007) and that interruptions irrelevant to interruptees' work tasks are harmful (Addas & Pinsonneault, 2018; Parker et al., 2024). After all, interruptions may also allow interrupters to provide benefits to interruptees, particularly social support. In addition, even when interruptions serve to benefit interrupters, interruptees might get advantages from interruptions by being helpful to interrupters. Prior task-based conceptualizations of interruptions cannot capture these social exchanges that are a key aspect of work interruptions.

Our study extends recent research by distinguishing between two major interruption categories that may be key to a better understanding of how the social interactions inherent in interruptions impact interruptees: Interrupter-focused interruptions and interruptee-focused interruptions. Interrupter-focused interruptions serve to benefit the interrupters, such as when interrupters request attention, information, and other types of support from interruptees. In contrast, interruptee-focused interruptions serve to benefit the interruptees, such as when interrupters offer support to interruptees. In this study, we develop a model on how these two interruption categories are linked to interruptees' job satisfaction via the three mechanisms interpersonal citizenship behaviour, work engagement, and cognitive exhaustion. For this purpose, we draw from social exchange theory (SET) that describes how employees exchange social resources, such as social support, with each other at work (Cropanzano et al., 2017). Due to their inherent social interactions, we expect interruptions to facilitate social exchanges between interruptees and interrupters. Specifically, the two interruption categories refer to how interruptions allow interruptees to either offer social resources to interrupters or request social resources from interrupters. The social exchanges embedded in interruptions, in turn, may have downstream consequences for interruptees' job satisfaction (Aryee et al., 2002). In line with prior research (Puranik et al., 2021; Sonnentag et al., 2018), we use a daily diary approach to examine within-person relationships of experiencing interruptions on the day level.

With this study, we contribute to the literature in various ways. First, we focus on the social interactions between interrupters and interruptees – a core aspect of work interruptions that prior research largely neglected (Jett & George, 2003; Puranik et al., 2021). To do so, we differentiate between two interruption categories that capture daily social exchanges among interrupters and interruptees, involving both the receipt and the provision of social support. These social exchanges through interruptions, in turn, may have critical implications for employees and organizations, highlighting the value of investigating them (Cropanzano et al., 2017). In addition, both self-interest and a concern for others are essential motives for employee behaviour (De Dreu & Nauta, 2009). Hence, distinguishing interruptions along these two key motives may reveal meaningful and previously unrecognized interruption categories.

Second, we examine mechanisms that explain how interruptions via synchronous communication channels can be positively associated with interruptees' job satisfaction (Puranik et al., 2021). By introducing ICB as a mechanism, we investigate whether interruptees themselves can benefit from interruptions that initially served to benefit the interrupters. Doing so enables us to challenge findings that interruptions irrelevant to interruptees' work tasks may be harmful for interruptees (Addas & Pinsonneault, 2018; Parker et al., 2024). After all, such interruptions may provide opportunities for interruptees to be helpful to interrupters, which may be a positive experience (e.g., Glomb et al., 2011). Moreover, we test work engagement as a mechanism to explain how interruptions that serve to benefit the interruptees can actually benefit them. Specifically, interruptions may provide interruptees with social support conducive to their work engagement. By illustrating that interruptions can also occur in the interruptees' interest, we challenge the widespread assumption within the literature that interruptions predominantly serve to benefit the interrupters but are initiated without considering the interruptees' interests (Käser et al., 2013; Romero et al., 2007).

Third, we contribute to the emerging stream of research on how interruptees can derive benefits from interruptions. While research that emphasized the goal-disrupting aspects of interruptions dominated the literature (Leroy et al., 2020; Puranik et al., 2020), more and more research shifts the spotlight onto more beneficial aspects of interruptions (e.g., Addas & Pinsonneault, 2018; Bush et al., 2021). By introducing a two-dimensional conceptualization of interruptions that focuses on social exchanges during interruptions, we demonstrate that interruptions often serve functional reasons and facilitate social exchanges. Moreover, studying synchronous communication channels allows us to further uncover beneficial aspects of interruptions. Specifically, employees might find interruptions via these channels more acceptable compared to those through asynchronous channels, such as emails. After all, interruptions via synchronous channels are especially effective at fostering social connections (Wang et al., 2020) and tend to be less overloading in their frequency (Rick et al., 2024). Nevertheless, we still account for the goal-disrupting aspects found in prior research (Lin et al., 2013; Puranik et al., 2021) by examining cognitive exhaustion as an alternative mechanism of how interruptions can be negatively related to interruptees' job satisfaction.

## Work interruptions: focus on synchronous communication channels

Work interruptions can be defined as unexpected suspensions of the interruptees' progress on ongoing work tasks (Puranik et al., 2020). Jett and George (2003) referred to this interruption subcategory as "intrusion". In this paper, we focus on interruptions (i.e., intrusions) occurring via synchronous communication channels (i.e., face-to-face interactions and phone calls) that require interruptees to respond directly to the interruptions (O'Conaill & Frohlich, 1995). This focus enables us to capture the core experience of interruptions. That is, interruptions via synchronous communication channels require interruptees to immediately halt their ongoing work tasks, making these interruptions highly disruptive (Nardi & Whittaker, 2002; Nees & Fortna, 2015). In contrast, interruptions via asynchronous communication channels, such as emails, allow interruptees to postpone their response (Latorella, 1999; Wajcman & Rose, 2011). For instance, interruptees can choose to respond to emails only at certain times and otherwise keep their email programme closed, thereby preventing the emails from becoming interruptions.

### Reasons for interruptions

Scholars proposed that distinguishing between different reasons for interruptions is key to uncovering the multidimensionality of interruptions (Bush et al., 2021; Puranik et al., 2021).<sup>1</sup> Grounded in the interruption-for-a-reason typology (Toebben et al., 2024), we distinguish between interruptions that serve to assist the interrupters (interrupter-focused interruptions) and interruptions that serve to assist interruptees (interruptee-focused interruptions). These interruption categories align with the two key employee motives for self-interest and a concern for others (De Dreu & Nauta, 2009). In addition, the interruption categories capture the give-and-take between co-workers that is core to social interactions at work (Cropanzano et al., 2017).

According to the interruption-for-a-reason typology (Toebben et al., 2024), both interrupter-focused interruptions and interruptee-focused interruptions aim at three different motives: performance, belongingness, and hedonic well-being. Toebben et al. (2024) derived these interruption motives from two core human motive classes: instrumental motives (the desire to attain long-term rewards) and hedonic motives (the desire to feel good and not feel bad; Ryan & Deci, 2001; Tamir, 2009). Drawing from these motive classes, Toebben et al. (2024) indicated that interruptions cover the instrumental motives to increase work performance (performance motive) and to strengthen social bonds (belongingness motive), and the hedonic motive to improve immediate affective states.

This distinction between instrumental motives and hedonic motives has also previously been applied in organizational research (e.g., Bindl et al., 2022). Regarding instrumental motives, scholars commonly differentiated between employees' desire to attain performance-related outcomes and social outcomes at work (e.g., de Wit et al., 2012; Umphress et al., 2003). Building on this distinction, Toebben et al. (2024)

differentiate between performance interruptions and belongingness interruptions. Moreover, hedonic motives also play a central role in employee behaviour and workplace interactions, such as when employees provide emotional support to reduce negative affective states of co-workers (Colbert et al., 2016; Judge & Kammeyer-Mueller, 2011).

Taken together, interrupter-focused interruptions are initiated to benefit interrupters' performance, belongingness, and affect, and interruptee-focused interruptions are initiated to benefit interruptees' performance, belongingness, and affect. Including the three interruption motives in our two overarching interruption categories allows us to cover the diversity of interruption reasons occurring in daily work life.

### Mechanisms linking interruption reasons to job satisfaction

We ground our reasoning in SET to explain how daily interrupter-focused interruptions and interruptee-focused interruptions influence interrupted employees. In addition, we build on Bush et al. (2021) who developed an interruption framework around the assumption that differentiating between interruption reasons is necessary to fully understand how interruptions impact interruptees. According to SET, employees exchange social resources during social interactions at work (Blau, 1964). The resources that are exchanged are diverse in their content, such as task-related information, emotional support, care, and attention (Mitchell et al., 2012). Reciprocity is a core aspect of social exchanges, where employees typically react to each other's behaviours with similar actions (Cropanzano et al., 2017; Gouldner, 1960). Viewing interruptions through a social exchange lens is particularly valuable given that interruptions can facilitate social exchanges through the social interactions inherent in them. In addition, because social exchanges often occur through spontaneous, informal interactions (Lim et al., 2020; Settoon & Mossholder, 2002), interruptions may be particularly suitable to social exchanges.

Interrupter-focused interruptions and interruptee-focused interruptions capture social exchanges embedded in interruptions. Specifically, during interruptions, interruptees may offer resources to interrupters (i.e., interrupter-focused interruptions) or interrupters may offer resources to interruptees (i.e., interruptee-focused interruptions). Drawing from Bush et al. (2021), we expect that interpersonal citizenship behaviour (ICB) and work engagement are direct results of these social exchanges inherent in interruptions.

Furthermore, according to SET, successful social exchanges have downstream consequences for employees' job attitudes, such as their job satisfaction (e.g., Aryee et al., 2002). When employees successfully provide resources to others, co-workers feel inclined to reciprocate by offering benefits to these employees who provided resources (Cropanzano & Mitchell, 2005). In addition, when employees successfully receive resources from others, these employees typically have more tools available to perform well at work, such as information and social support. ICB and work engagement can signal successful resource exchanges, so that they may serve as mechanisms to explain the relationship between the interruption categories and job satisfaction (see Figure 1).

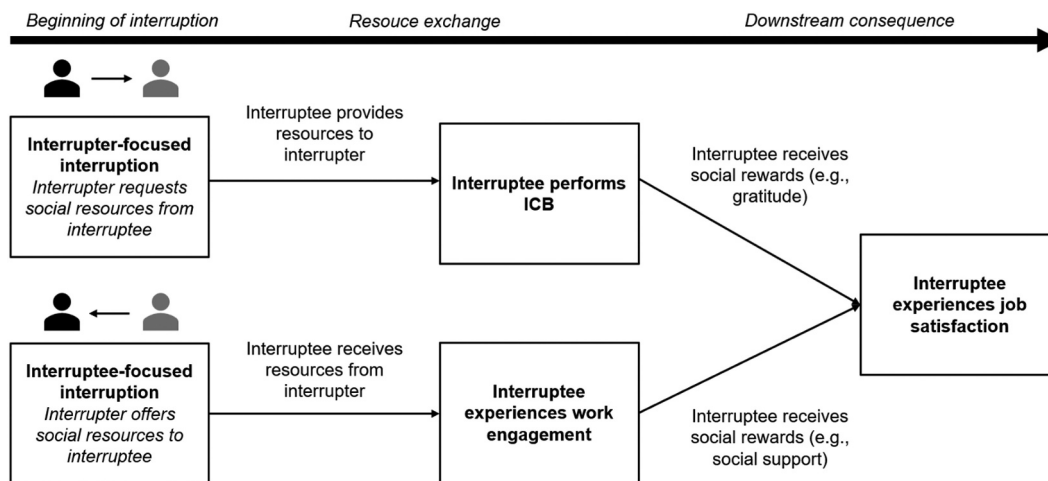


Figure 1. Hypothetical depiction of resource exchange within work interruptions.

We chose job satisfaction as outcome variable because it is an established employee well-being indicator (Diener et al., 1999) that has commonly been used in research on social exchange (e.g., Aryee et al., 2002; Loi et al., 2014) and has been linked to work interruptions (e.g., Keller et al., 2020; Lin et al., 2013; Puranik et al., 2021). However, while past research mainly focused on how interruptions reduce interruptees' job satisfaction, our study also accounts for how interruptions may be positively related to interruptees' job satisfaction.

### Linking Interrupter-Focused Interruptions to job satisfaction via ICB

ICBs are acts of helping directed at co-workers that are not part of the formal job requirements (Settoon & Mossholder, 2002). Past research mainly studied reduced in-role performance as a performance-related outcome of work interruptions (e.g., Couffe & Michael, 2017). However, because interruptions involve social interactions with co-workers (Puranik et al., 2020), interruptions may also affect interpersonal extra-role behaviour, such as ICB. Hence, ICB may be an underreported yet important outcome of work interruptions.

According to Bush et al. (2021) framework, interruptions can indirectly lead to ICBs by facilitating interruptees' cooperation with co-workers. Adjusting this framework, we argue that interruptions can be directly related to ICBs. Specifically, interrupter-focused interruptions may facilitate social exchanges where interrupters request instrumental and emotional support from interruptees. When getting interrupted for a help request, interruptees can provide the requested help to the interrupters, thereby performing ICBs. For instance, in response to the interrupters' help request, interruptees can provide the interrupters with task-related information or listen to the interrupters' personal problems. In line with this reasoning, employees commonly provide help in response to their co-workers' help requests (Lee et al., 2019; Spitzmuller & Van Dyne, 2013). Further, in a qualitative study, interruptees described that they wanted to help when the interrupters requested their

support (Feldman & Greenway, 2021). Hence, on days on which employees experience these interruptions, we expect them to perform ICBs.

**Hypothesis 1a:** At the day level, interrupter-focused interruptions will be positively related to interruptees' ICB.

Prior research commonly found that doing good, such as by performing ICBs, feels good (Glomb et al., 2011; Weinstein & Ryan, 2010). Specifically, performing citizenship behaviours is linked to improved employee job satisfaction (for a meta-analysis, Chiaburu et al., 2011), also on a day level (e.g., Barnes et al., 2013). Applying SET, employees who perform ICBs benefit from reciprocity norms (Gouldner, 1960). Specifically, when employees provide resources to their co-workers through ICBs, co-workers can reciprocate by offering social rewards conducive to job satisfaction (Bolino & Grant, 2016). For instance, employees who engage in ICBs should also be more likely to receive social support from their co-workers because co-workers want to repay the provided ICBs (Rhoades & Eisenberger, 2002; Zeijen et al., 2020). In addition, employees who perform ICBs may receive gratitude from their co-workers (Algoe et al., 2013; Lee et al., 2019). Helpers are especially likely to receive gratitude when the help has been requested by the help recipient (Lee et al., 2019), as is the case for interruptees experiencing interrupter-focused interruptions. Therefore, we hypothesize that interruptees experience high job satisfaction on days on which employees perform ICBs.

**Hypothesis 1b:** At the day level, ICB will be positively related to interruptees' job satisfaction.

Taken together, we expect performing ICBs through experiencing interrupter-focused interruptions to be positively related to interruptees' job satisfaction.

**Hypothesis 1c:** At the day level, interrupter-focused interruptions will have a positive indirect effect on interruptees' job satisfaction via ICB.

### **Linking Interruptee-Focused Interruptions to job satisfaction via work engagement**

Work engagement is defined as a positive mental state that is characterized by the experience of vigour, dedication, and absorption with respect to one's work (Schaufeli et al., 2006). Because interruptions imply that interruptees disengage from ongoing tasks, decreased work engagement is a plausible outcome of daily interruptions, as supported by previous research (Parke et al., 2018). Building on this research, Bush et al. (2021) framework predicted that interruptions can be hindrance demands that disrupt interruptees' progress on work tasks, thereby reducing work engagement. Further, Bush et al. (2021) argued that interruptions can also be challenge demands that motivate interruptees to invest additional efforts in their work tasks, thereby improving work engagement.

Extending Bush et al. (2021) framework, we argue that interruptions that aim at benefitting interruptees can also constitute a job resource and may therefore be conducive to interruptees' work engagement. That is, interruptee-focused interruptions may facilitate social exchanges where interrupters provide interruptees with social support, which, in turn, is a critical resource for interruptees' work engagement (e.g., Bakker, 2011). Specifically, interruptee-focused interruptions can serve to help interruptees tangibly, for instance, by providing interruptees with important task-related information (Jett & George, 2003). This form of instrumental support may improve interruptees' progress towards work goals (Lim et al., 2020), thereby increasing their willingness to engage in their work (Bakker & Demerouti, 2007; Crawford et al., 2010).

Furthermore, interruptee-focused interruptions can supply interruptees with emotional support given that these interruptions serve to improve the interruptees' belongingness and affect. For instance, interrupters might use humour to lighten interruptees' mood or ask interruptees about their emotional state. These positive and supportive interactions inherent in interruptee-focused interruptions may be integral for work engagement because they satisfy basic human needs and produce positive states conducive to work performance (Kahn & Heaphy, 2014; Van de Ven et al., 2013; Xanthopoulou et al., 2008). Overall, we expect interruptee-focused interruptions to be positively related to interruptees' work engagement.

**Hypothesis 2a:** At the day level, interruptee-focused interruptions will be positively related to interruptees' work engagement.

Being engaged means to invest much in one's job by putting time, energy, and effort into work (Bakker, 2011). When being engaged, employees typically show positive behaviours towards their co-workers and organization, such as high performance and citizenship behaviours (Schaufeli & Salanova, 2008; Dalal et al., 2012). According to SET, these investments that result from engagement create an expectation of reciprocity (Cropanzano & Mitchell, 2005; Saks, 2006). Specifically, due to reciprocity norms, when showing engagement, employees may receive social rewards that contribute to their job satisfaction, such as social support and positive evaluations from others (Yalabik et al., 2013; Zeijen et al., 2020). Moreover,

being engaged is typically associated with broadened thought-action processes that enable employees to actively build resources conducive to their job satisfaction, such as positive self-beliefs (Fredrickson, 2003; Simbula & Guglielmi, 2013; Xanthopoulou et al., 2008). In line with these arguments, employees have been found to experience improved well-being on days when their work engagement was high (e.g., Junça-Silva et al., 2017). Hence, on days when interruptees feel engaged at work, we expect them to have high job satisfaction.

**Hypothesis 2b:** At the day level, work engagement will be positively related to interruptees' job satisfaction.

Taken together, we hypothesize that interruptee-focused interruptions are positively associated with interruptees' job satisfaction because these interruptions are positively related to interruptees' work engagement.

**Hypothesis 2c:** At the day level, interruptee-focused interruptions will have a positive indirect effect on interruptees' job satisfaction via work engagement.

### **Alternative Mediator: cognitive exhaustion**

Past research argued that interruptions reduce interruptees' self-regulatory resources, thereby exerting negative effects on their well-being (Lin et al., 2013; Puranik et al., 2021). That is, interruptions require interruptees to halt their ongoing task and divert their attention to another demand, which is a cognitively exhausting process (Freeman & Muraven, 2010). To be able to account for these potential negative effects of the interruptions, we include cognitive exhaustion as an alternative mediator of the relation between the interruption categories and job satisfaction in our model.

## **Method**

### **Sample and procedure**

We invited employees from various occupations to participate in our study. Undergraduate students helped in recruiting German-speaking participants, which is useful to improve the response rate in diary studies (Demerouti & Rispens, 2014). Students were unfamiliar with our study hypotheses. As recommended by Wheeler et al. (2014), the first and second author closely oversaw the data collection and managed the communication with all participants. Students recruited participants from their own social networks and via postings on social media pages, such as [www.facebook.com](http://www.facebook.com) and [www.xing.de](http://www.xing.de).

Data collection took place from October 2021 to November 2021<sup>2</sup> – a time that involved mild contact restrictions at many German workplaces due to the coronavirus pandemic, such as the mandate to use of medical face masks. To be eligible for participation, interested employees had to work at least 20 hours and four days per week. In addition, they had to spend half of their weekly working hours at a workplace outside the home office to improve the likelihood that they experience

interruptions at work. Self-employed workers and shift workers were not eligible to participate.

After completing an online entrance survey, participants received links to two daily online surveys during 10 workdays (Monday to Friday). Participants had to fill out the first survey no later than one hour after finishing work (end-of-work survey) and the second survey right before going to sleep (bedtime survey). Participants received the links to the end-of-work survey between 3:00 p.m. and 5:00 p.m. and to the bedtime survey between 8:00 p.m. and 10 p.m., depending on their individual schedules. As an incentive, participants who completed the entrance survey and all daily surveys on at least six days could take part in a lottery to win one of four vouchers worth 40 Euros for a large online retailer. We obtained informed consent from all participants. In Germany, institutional review board approval is not required for correlational studies.

A total of 173 persons signed up for the study, 157 of which provided entrance-survey data. We removed nine participants who did not provide any daily survey data. The remaining 148 participants provided 897 end-of-work surveys and 803 bedtime surveys. In each survey, we administered an attention-check item that prompted participants to answer with a specific response option (Huang et al., 2012). The positions of the attention check items varied in each survey so that participants could not foresee when the items would appear. We removed 52 end-of-work surveys and 31 bedtime surveys due to failed attention checks. In addition, we removed another 46 end-of-work surveys and 45 bedtime surveys because they were responded to exceptionally fast according to Leiner's (2019) relative speed index. Further, we removed another 12 end-of-work surveys because participants reported that they were not working in the afternoon and another four end-of-work surveys because they were answered less than an hour before the bedtime survey. Upon exclusion of these invalid data, we combined the remaining end-of-work and bedtime surveys, also including days on which only end-of-work surveys or only bedtime surveys were completed, resulting in a dataset of 148 participants and 909 days. Finally, we retained 108 participants (799 days) who had provided

data on all study variables (i.e., end-of-work survey as well as bedtime survey answered on the same day) for at least two days.

The final sample included 108 employees (55.6% female). Mean age was 44.51 years ( $SD = 14.11$ ).<sup>3</sup> Participants provided data from 705 end-of-work surveys and 675 bedtime surveys (a total of 799 days), with an average of 7.40 days per participant. Sixty-four of the participants (59.3%) held a university degree, and 45 (41.7%) were in a leadership position. In terms of weekly working hours, 33 participants (30.6%) worked 35 hours or less per week, 45 participants worked 35 to 45 hours per week (41.7%), and 30 (27.8%) worked 45 hours or more. Twenty-nine participants (26.9%) had two-and-half or less years of work experience, 26 participants (24.1%) had between two-and-a-half and seven-and-a-half years of work experience, 19 participants (17.6%) had between seven-and-a-half and 15 years of work experience, and 34 participants (31.5%) had 15 or more years of work experience. Participants worked in a diverse range of occupations, including engineering, customer service, and consulting. With respect to industry, most participants worked in science and education (22.2%), health and social services (14.8%), and manufacturing (13.9%).

We examined whether the final sample of 108 participants differed from the 49 participants who provided entrance-survey data but were excluded from our sample. Analyses revealed no significant differences concerning gender ( $t = female; 2 = male$ ),<sup>4</sup>  $\chi^2(1) = 0.00, p = .99$ , leadership position ( $t = no; 2 = yes$ ),  $\chi^2(1) = 0.20, p = .66$ , educational level ( $t = no university degree; 2 = university degree$ ),  $\chi^2(1) = 0.09, p = .76$ , and number of weekly experienced interruptions,  $t(94.31) = 0.21, p = .83$ . However, participants in the final sample ( $M = 44.51, SD = 14.11$ ) were significantly older than the excluded participants ( $M = 35.59, SD = 13.73$ ),  $t(88.44) = 3.64, p < .001$ .

### Measures

All items were in German. We translated the scales that were only accessible in English into German using a translation-backtranslation procedure (Brislin, 1970). Unless mentioned otherwise, participants responded to the items on five-point

**Table 1.** Descriptive statistics of the study variables.

Variable	M	SD <sub>b</sub>	SD <sub>w</sub>	ICC	$\alpha_b$	$\alpha_w$	1	2	3	4	5	6	7	8	9
(1) Interrupter-focused interruption (EoW)	1.76	0.77	0.64	.51	0.97	0.91		.56***	.34***	.00	.02	-.01	.57***	.01	.31***
(2) Interruptee-focused interruption (EoW)	1.57	0.72	0.51	.61	0.99	0.89	.86***		.26***	.11**	-.02	.07	.46***	.01	.25***
(3) ICB (EoW)	2.63	0.83	0.83	.41	0.93	0.79	.56***	.45***		.10**	.03	.15***	.33***	-.06	.22***
(4) Work engagement (EoW)	3.29	0.64	0.59	.46	0.97	0.93	.10	.11	.31**		-.33***	.41***	.06	.06	.08*
(5) Cognitive exhaustion (EoW)	1.56	0.56	0.41	.59	0.99	0.87	.02	.04	-.08	-.13		-.14***	.02	-.07	-.02
(6) Job satisfaction (BT)	3.69	0.62	0.59	.73	0.97	0.86	-.01	-.01	.12	.74***	-.16		.00	-.04	.07
(7) Number of interruptions (EoW)	3.47	2.09	1.71	.52	/	/	.52***	.45***	.39***	.09	.00	-.03		-.02	.36***
(8) Study day	5.09	1.25	2.75	.00	/	/	-.09	-.10	-.07	.04	.03	.00	-.11		.31***
(9) Daily work location (EoW)	1.66	1.66	0.37	.28	/	/	.25*	.20*	.19*	.01	-.19	-.13	.30**	-.07	

Means are at the between-person level. ICC = percentage of variance between individuals. EoW = end of work survey; BT = bedtime survey. ICB = Interpersonal citizenship behaviour.  $SD_b$  = SD at the between-person level;  $SD_w$  = SD at the within-person level.  $\alpha_b$  = Cronbach's  $\alpha$  at the between-person level;  $\alpha_w$  = Cronbach's  $\alpha$  at the within-person level (Geldhof et al., 2014).

Correlations below the diagonal refer to the between-individual level ( $N = 108$ ); Correlations above the diagonal refer to the within-individual level ( $n = 799$  days). Range *interrupter-focused interruptions and interruptee-focused interruptions*: 1 (Never) to 7 (constantly); Range *number of interruptions*: 1 (never) to 11 (ten times or more); Range *study day*: 1 (Monday of the first week) to 10 (Friday of the second week); Range *daily work location*: 1 (home office) to 2 (office); Range other variables: 1 (strongly disagree) to 5 (strongly agree).

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Likert scales ( $1 = \text{strongly disagree}$  to  $5 = \text{strongly agree}$ ). We assessed job satisfaction in the bedtime survey and the other constructs in the end-of-work survey, referring to experiences during the afternoon. At the beginning of each survey, we explained that we refer to their colleagues, subordinates, and superiors when using the phrase “people”. The reliabilities of all variables can be found in Table 1. All items are made available at:

[https://osf.io/ruksy/?view\\_only=13573d90b79f4c1bb6caeb022814b78b](https://osf.io/ruksy/?view_only=13573d90b79f4c1bb6caeb022814b78b)

### ***Interrupter-focused interruptions and interruptee-focused interruptions***

We based our interruption measures on the interruption-for-a-reason scale developed and validated in earlier research (Toebben et al., 2024). We assessed interrupter-focused interruptions and interruptee-focused interruptions with 12 items each, with both scales covering performance motives, belongingness motives, and hedonic motives with four items each. Because the original interruption-for-a-reason scale is set out from the perspective of the interrupter, we adapted the scale to the perspective of the interruptee.

The item stem was “While I was working this afternoon, people I work with unexpectedly turned to me and spoke to me ...”. This item stem covers the two defining features of an interruption identified by Puranik et al. (2020). First, by specifying that the interruptees were busy with their work at the start of the encounter, the item stem includes the interruption feature that the encounter causes the interruptees to suspend their work tasks. Second, the item stem also includes the interruption feature that the encounter is unexpected (Toebben et al., 2024). At the same time, the item stem avoids problems of prior interruption measures, such as the use of potentially negatively connotated phrases and words (e.g., “pulled away” or “interruption”) and the emphasis on goal-disrupting effects of interruptions (e.g., “Interruptions from coworkers keep me from tasks I have started”; Fletcher et al., 2018).

Participants responded to the interruption items on a seven-point scale ( $1 = \text{never}$  to  $7 = \text{constantly}$ ). Sample items for the interrupter-focused subscale are “... to ask for support on their work tasks” (performance motive), “... to feel accepted” (belongingness motive), and “... to feel better” (hedonic motive). Sample items for the interruptee-focused subscale include “... to help me out with my work tasks” (performance motive), “... so that I feel accepted” (belongingness motive), and “... to make me feel better” (hedonic motive).

**Scale validation..** Given that the interruption-for-a-reason scale (IFRS) was originally developed and validated for the interrupters’ perspective (Toebben et al., 2024), we conducted a validation study that followed best practices (Hinkin, 1998) to re-validate the scale as adapted to interruptees. We focused on validating the scale with interrupter-focused interruptions and interruptee-focused interruptions as superordinate interruption reasons. In this validation study, we examined the adapted scale’s construct validity (Phase 1) and relationships with other interruption measures (Phase 2). Here, we present a concise summary of the scale

validation steps, while offering more detail in an accompanying online supplement.

We collected data from an independent sample of 252 employees from various occupations to validate our scale in two phases. In Phase 1, we used confirmatory factor analysis (CFA) to examine the factor structure of the adapted IFRS. The model with two higher-order factors (interrupter-focused interruptions and interruptee-focused interruptions) and six subordinate factors fit the data well,  $\chi^2 = 535.512$ ,  $df = 245$ ,  $p < .001$ , comparative fit index (CFI) = 0.951, Tucker-Lewis index (TLI) = 0.945, root-mean-square error of approximation (RMSEA) = 0.069, standardized root mean square residual (SRMR) = 0.059, Akaike information criterion (AIC) = 21,875.695, and better than an alternative one-factor model that subsumed all interruption categories under one factor.

In Phase 2, we investigated how interrupter-focused interruptions and interruptee-focused interruptions relate to other interruption measures. We chose the measures by Parke et al. (2018), Fletcher et al. (2018), Wilkes et al. (2018), and Bush et al. (2021) as other interruption measures given that these measures underwent systematic scale development and validation. We expected our adapted IFRS measure to be positively related to other interruption measures because all measures assess interruptions as the same underlying construct. However, we did not expect correlations larger than .80 that would suggest redundancy of the adapted IFRS (Kline, 2005). Except for the relation between interruptee-focused interruptions and Fletcher et al. (2018) measure,  $r = .07$ ,  $p = .254$ , the interruption reasons were positively related to all other interruption measures, with correlations ranging between  $r = .29$ ,  $p < .001$ , and  $r = .49$ ,  $p < .001$ . Altogether, these results support the validity of the IFRS as adapted to interruptees.

### ***Interpersonal citizenship behavior (ICB)***

We assessed ICB using three items from the person-focused citizenship behaviour subscale developed by Settoon and Mossholder (2002) and adapted for use in a daily diary format by Bush et al. (2021). We used items from the person-focused citizenship subscale because it assesses helping behaviours in a more general way and not just task-related helping behaviours. Hence, the person-focused citizenship subscale can cover the various forms of help giving included in our interruption measure. A sample item is: “This afternoon, I went out of my way to be nice to other people.”

### ***Work engagement***

We used eight items from the shortened Utrecht Work Engagement Scale (Schaufeli et al., 2006) scale and adapted them for use in a daily diary format. A sample item is: “This afternoon, I felt bursting with energy at work.” We dropped one item from the original nine-item scale because it was not suitable for being measured at the end of the workday (“when I get up in the morning, I feel like going to work”).

### ***Job satisfaction***

We used the four-item scale developed by Thompson and Phua (2012) to assess job satisfaction. We asked participants to indicate to what extent the statements apply to them right now. An example item is “I find real enjoyment in my job.”

### Cognitive exhaustion

We assessed cognitive exhaustion using four items from the cognitive weariness subscale of the Shirom-Melamed Burnout Measure (Shirom, 2003). Participants were instructed to indicate how they were feeling right now. A sample item is “My thinking process is slow.” We dropped one item from the original five-item scale to prevent overlap with a scale from another project that was part of the data collection (“I have difficulty concentrating”).

### Control variables

To rule out the alternative explanation that our results are driven by the number of experienced interruptions rather than the reasons for interruptions, we included the number of interruptions as an additional predictor of the mediators and outcomes in our model. Studying the number of interruptions as control variable is consistent with the frequency approach we employed to examine the accumulated effects of multiple interruptions (Puranik et al., 2020). We assessed the number of interruptions with the item “How many times this afternoon have people you work with unexpectedly turned to you and spoken to you while you were working?” and used response options ranging from 1 (*never*) to 11 (*ten times or more*). We instructed participants to only refer to encounters in which other people were physically present or contacted them by phone. As another control variable, we asked participants where they had worked in the afternoon (1 = *home office*; 2 = *workplace without other people nearby*; 3 = *workplace with other people nearby*; 4 = *other*) and grouped the responses according to whether participants had chosen the third option, that is, whether they had worked at a workplace with other people nearby (1 = *no*; 2 = *yes*). Furthermore, the work location is an important control variable because it can influence the quantity and quality of experienced interruptions (Leroy et al., 2021). For instance, when working from home, experiencing face-to-face interruptions by other co-workers is unlikely. Lastly, we controlled for the study day using a variable ranging from 1 (*Monday of the first week*) to 10 (*Friday of the second week*). Results from hypotheses tests remained robust when removing the control variables from the analysis.

### Construct validity

To examine the construct validity of our measures, we ran a multilevel confirmatory factor analyses in Mplus 8.7 (L. K. Muthén & Muthén, 1998–2017). We dealt with missing data by applying full information maximum likelihood estimation (Newman, 2014). We modelled 10 factors at both the within-person level and the between-person level: The six interruption reasons (interrupter-focused performance interruptions, interrupter-focused belongingness interruptions, interrupter-focused hedonic interruptions, interruptee-focused performance interruptions, interruptee-focused belongingness interruptions, interruptee-focused hedonic interruptions), ICB, work engagement, cognitive exhaustion, and job satisfaction. In addition, we subsumed each of the three interrupter-focused interruption subfactors under a higher-order factor representing interrupter-focused interruptions, and we subsumed each of the three interruptee-

focused interruption subfactors under a higher-order factor representing interruptee-focused interruptions. Model fit of the hypothesized model was satisfactory,  $\chi^2 = 3,203.803$ ,  $df = 1,678$ ,  $p < .001$ , CFI = 0.929, TLI = 0.923, RMSEA = 0.034, SRMR (within) = 0.048, AIC = 57,023.009. In this model, seven residual variances were negative on the between-individual level, estimates ranging from 0.001 ( $SE = 0.005$ ;  $p = .912$ ) to  $-0.004$  ( $SE = 0.005$ ;  $p = .479$ ).<sup>5</sup>

We compared our hypothesized model with two alternative models, in which conceptually related constructs were combined into one factor. Our hypothesized model showed a better fit than a model that subsumed work engagement and job satisfaction under one factor,  $\chi^2 = 3,725.846$ ,  $df = 1,688$ ,  $p < .001$ , CFI = 0.905, TLI = 0.899, RMSEA = 0.039, SRMR (within) = 0.060, AIC = 57,543.187, Satorra-Bentler  $\Delta\chi^2(10) = 351.75$ ,  $p < 0.001$ , and a model subsuming ICB and work engagement under one factor,  $\chi^2 = 4,118.172$ ,  $df = 1,688$ ,  $p < .001$ , CFI = 0.886, TLI = 0.879, RMSEA = 0.042, SRMR (within) = 0.075, AIC = 57,918.087, Satorra-Bentler  $\Delta\chi^2(10) = 1,642.267$ ,  $p < 0.001$ .<sup>6</sup>

### Analytic strategy

Due to the two-level structure of our data (days nested in participants), we tested our hypotheses using multilevel path modelling (Preacher et al., 2010) in Mplus 8.7 (L. K. Muthén & Muthén, 1998–2017). To test for random slopes (LeBeau et al., 2018), we ran one multilevel path model where we set all hypothesized paths at random. Specifically, we set the path from interrupter-focused interruptions to ICB, the path from interruptee-focused interruptions to work engagement, the paths from both interruption types to cognitive exhaustion, and the paths from the three mediators to job satisfaction at random. Missing values were handled using multiple imputation (Newman, 2014). None of the random slopes showed significant variance at the between-person level, with estimates ranging from 0.000 ( $SE = 0.042$ ;  $p = .992$ ) to 0.009 ( $SE = 0.032$ ;  $p = 0.783$ ). Hence, for the sake of parsimony, we used a random-intercept model with fixed slopes.

We specified the hypothesized model at both the within-person and the between-person level and included the daily number of interruptions as additional predictor at both levels. To facilitate the interpretation of the indirect effects, we included the direct paths from interrupter-focused interruptions and interruptee-focused interruptions to job satisfaction at both the within-person level and the between-person level. At the within-person level, we controlled for the work location and the study day. We summarized each of the three interrupter-focused interruption categories under a higher-order factor representing interrupter-focused interruptions and each of the three interruptee-focused interruption categories under a higher-order factor representing interruptee-focused interruptions. We used unweighted higher-order factors so that each interruption category was equally strongly represented within its respective higher-order factor.

We allowed interruptee-focused interruptions, interrupter-focused interruptions, and the number of interruptions to correlate at both levels. In addition, we allowed correlations between the three mediator variables work engagement, ICB,



**Table 2.** Results of multilevel path analysis of main Model.

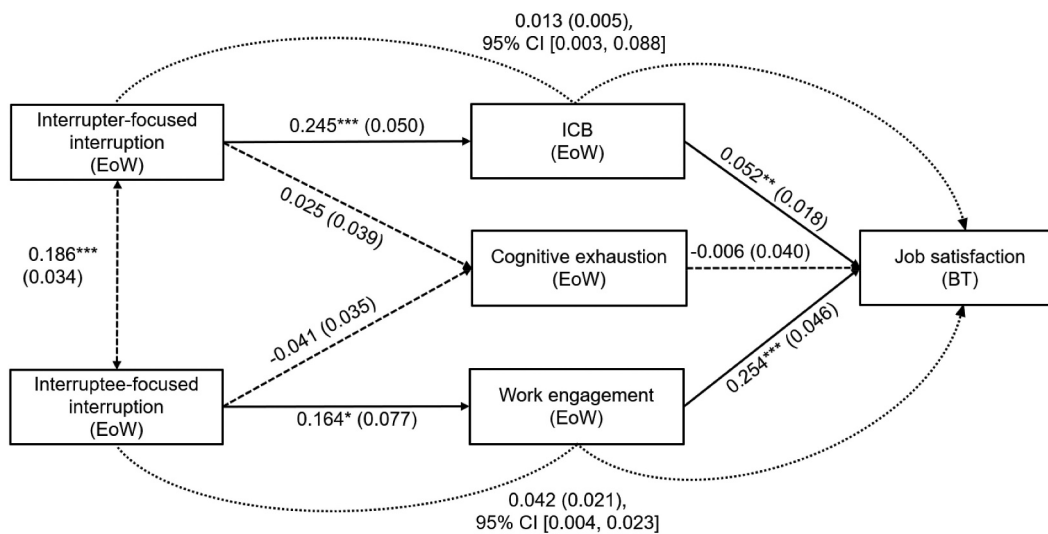
Within level predictors	ICB (EoW)		Work engagement (EoW)		Cognitive exhaustion (EoW)		Job satisfaction (BT)	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Interrupter-focused interruptions (EoW)	0.245***	0.050	-0.110	0.070	0.025	0.039	-0.036	0.046
Interruptee-focused interruptions (EoW)	0.093	0.077	0.164*	0.077	-0.041	0.035	0.034	0.039
ICB (EoW)							0.052**	0.018
Work engagement (EoW)							0.254***	0.046
Cognitive exhaustion (EoW)							-0.006	0.040
Control variables								
Number of interruptions (EoW)	0.080**	0.027	0.012	0.023	0.008	0.012	-0.016	0.012
Study day	-0.017	0.012	0.013	0.010	-0.010	0.006	-0.010	0.007
Daily work location	0.207*	0.103	0.146	0.099	-0.064	0.053	0.048	0.041
Residual Variance	0.689***	0.050	0.399***	0.043	0.196***	0.028	0.128***	0.021
Interrupter-focused interruptions (EoW)	0.790**	0.300	0.033	0.260	0.058	0.315	0.212	0.175
Interruptee-focused interruptions (EoW)	-0.292	0.275	0.078	0.246	-0.008	0.281	-0.216	0.160
ICB (EoW)							-0.173	0.097
Work engagement (EoW)							1.010***	0.097
Cognitive exhaustion (EoW)								
Control variables								
Number of Interruptions (EoW)	0.049	0.043	0.024	0.051	-0.001	0.044	-0.021	0.022
Residual Variance	0.341***	0.060	0.336***	0.061	0.279***	0.061	0.107***	0.028

N = 108; n = 799. Estimates are unstandardized. Results are from one overall analysis. EoW = end of work survey; BT = bedtime survey. ICB = Interpersonal citizenship behaviour. \*p < .05. \*\*p < .01. \*\*\*p < .001.

**Table 3.** Within-Person Indirect Effects.

	Estimate	SE	95% CI
Interrupter-focused interruptions (EoW) → ICB (EoW) → Job satisfaction (BT)	0.013	0.005	[0.003, 0.088]
Interruptee-focused interruptions (EoW) → Work engagement (EoW) → Job Satisfaction (BT)	0.042	0.021	[0.004, 0.023]
Interrupter-focused interruptions (EoW) → Cognitive exhaustion (EoW) → Job Satisfaction (BT)	0.000	0.001	[-0.004, 0.004]
Interruptee-focused interruptions (EoW) → Cognitive exhaustion (EoW) → Job satisfaction (BT)	0.000	0.002	[-0.047, 0.004]

Estimates are unstandardized. Monte Carlo method (Selig & Preacher, 2008) was used to create confidence intervals. EoW = end of work survey; BT = bedtime survey. ICB = interpersonal citizenship behaviour. CI = confidence interval.



**Figure 2.** Research Model including results from multilevel path Model. Note. Estimates are unstandardized. Between-person level paths, control variables, within-level paths between the mediators, and indirect paths of cognitive exhaustion are not displayed for parsimony. EoW = end-of-work survey; BT = bedtime survey. ICB = Interpersonal citizenship behaviour. → = hypothesized direct effects. → = hypothesized indirect effects. → = Paths added to final model.

and cognitive exhaustion at both levels.<sup>7</sup> In line with recommendations by Newman (2014), we handled missing data by using full information maximum likelihood estimation.

We tested Hypotheses 1a and 1c and 2c with a 1–1–1 mediation model with indirect effects being specified on the within-person level (Preacher et al., 2010). We used the model constraint command in Mplus and the Monte Carlo method (Selig & Preacher, 2008) with 20,000 repetitions to calculate the indirect effects and their confidence intervals. Model fit was excellent,  $\chi^2 = 0.888$ ,  $df = 1$ ,  $p = .35$ , CFI = 1.00, TLI = 1.00, RMSEA = 0.000, SRMR (within) = 0.007.

## Results

Table 1 displays descriptive statistics, intraclass correlations (ICC), and correlations among the variables. Table 2 shows the results for the direct effects and Table 3 shows the results for the within-person indirect effects. We report the results at the within-person level because our hypotheses refer to this level. All reported coefficients are unstandardized. Figure 2 summarizes the within-person part of the model results.

Hypothesis 1a stated that interrupter-focused interruptions will be positively related to interruptees' ICB. In line with this hypothesis, interrupter-focused interruptions positively predicted ICB, estimate = 0.245,  $SE = 0.050$ ,  $p < .001$ . Hypothesis 1b suggested that interruptees' ICB will be positively related to job satisfaction. We found support for this hypothesis as ICB positively predicted job satisfaction, estimate = 0.052,  $SE = 0.018$ ,  $p = .003$ . Hypothesis 1c stated a positive indirect effect of interrupter-focused interruptions on interruptees' job satisfaction via ICB. Supporting this hypothesis, the indirect effect of interrupter-focused interruptions on job satisfaction via ICB was positive and significant, indirect effect = 0.013,  $SE = 0.005$ , 95% CI [0.003, 0.088].

Hypothesis 2a stated that interruptee-focused interruptions will be positively related to interruptees' work engagement. Supporting this hypothesis, interruptee-focused interruptions positively predicted work engagement, estimate = 0.164,  $SE = 0.077$ ,  $p = .033$ . According to Hypothesis 2b, interruptees' work engagement will be positively related to job satisfaction. In line with this hypothesis, work engagement positively predicted interruptees' job satisfaction, estimate = 0.254,  $SE = .046$ ,  $p < .001$ . Hypothesis 2c suggested a positive indirect of interruptee-focused interruptions on interruptees' job satisfaction via work engagement. We found support for this hypothesis as the indirect effect of interruptee-focused interruptions on interruptees' job satisfaction via work engagement was positive and significant, indirect effect = 0.042,  $SE = 0.021$ , 95% CI [0.004, 0.023].

We included cognitive exhaustion as an alternative mediator in the model to account for potential negative aspects of the interruption reasons. Neither interrupter-focused interruptions, estimate = 0.025,  $SE = 0.039$ ,  $p = .530$ , nor interruptee-focused interruptions, estimate = -0.041,  $SE = 0.035$ ,  $p = .240$ , were associated with cognitive exhaustion. Accordingly, there were no indirect effects of interrupter-focused interruptions, indirect effect = 0.000,  $SE = 0.001$ ,

95% CI [-0.004, 0.004], and interruptee-focused interruptions, indirect effect = 0.000,  $SE = 0.002$ , 95% CI [-0.047, 0.004], on interruptees' job satisfaction via cognitive exhaustion.

## Additional analyses

Interruptions might become exponentially more harmful as they accumulate (Baethge et al., 2015). In contrast, when interruptions are infrequent, their benefits may be more evident because negative aspects are less pronounced. In other words, the positive aspects of interruptions identified in our research might only occur when interruptions are rare. However, on days when employees experience frequent interruptions, these positive aspects may fade, and negative aspects, such as cognitive exhaustion, may surface. Hence, the relationship between the interruptions categories and the three mechanisms we studied could be curvilinear.

To test for these curvilinear effects of the two interruption categories, we entered squared terms of interrupter-focused interruptions and interruptee-focused interruptions as predictors into the multilevel path model. In doing so, we controlled for the linear effects of the interruption categories (Baer & Oldham, 2006). We also allowed the squared terms of the interruption categories to correlate with each other and with their linear terms. The results showed that no curvilinear patterns emerged in the predicted relationships between the interruption categories and work engagement, ICB, or cognitive exhaustion. Interestingly, in this model, interruptee-focused interruptions had a positive linear relationship with ICB, estimate = 0.569,  $SE = 0.284$ ,  $p = .045$ , and a negative curvilinear relationship with ICB, estimate = -0.100,  $SE = 0.050$ ,  $p = .044$ , suggesting that positive effects of interruptee-focused interruptions fade with increasing frequency. As a potential explanation, interruptees may perform ICB to reciprocate the help they received through interruptee-focused interruptions (Cropanzano & Mitchell, 2005). However, when interruptee-focused interruptions occur frequently, interruptees may feel like they are burdening the interrupters, which could weaken the positive relationship. After all, as these interruptions accumulate, interrupters might become increasingly exhausted from providing help (Lanaj et al., 2016). Full results are available in Tables S2 in the online supplement.

## Discussion

In this diary study, we investigated the relationship between interruptions via synchronous communication channels and interruptees' job satisfaction. We distinguished between two interruption categories: Interruptions that serve to benefit the interrupters (interrupter-focused interruptions) and interruptions that serve to benefit the interruptees (interruptee-focused interruptions). Building on SET (Blau, 1964) and the interruption framework by Bush et al. (2021), we found that daily interrupter-focused interruptions were positively related to interruptees' job satisfaction via interruptees' ICB. In addition, daily interruptee-focused interruptions were positively related to interruptees' work engagement, thereby being positively associated with interruptees' job satisfaction. Moreover, to account for potential negative aspects of interruptions, we examined cognitive exhaustion as an alternative mediator but did not find any effects of cognitive exhaustion.

### **Theoretical implications**

With this study, we provide several advancements to theory on work interruptions. First, we offer a more nuanced understanding of interruptions by differentiating between two interruption categories. Specifically, we distinguished between interruptions that serve to benefit the interrupter versus the interruptee in relation to social exchange. Our results showed that the interruption categories were differently related to interruptees' reactions, further underlining the importance of distinguishing between them. Thus, we demonstrate that approaches to studying interruptions that assume all interruptions are identical in content are too simplistic (Puranik et al., 2020). In addition, we expand recent research that also introduced novel interruption categories to the literature (Addas & Pinsonneault, 2018; Bush et al., 2021; Parker et al., 2024). While earlier research distinguished between whether interruptions were relevant to interruptees' work tasks or not, we showed that differentiating between interruptions based on their inherent social exchanges offers another valuable angle for understanding varying effects of interruption categories.

Second, moving beyond the impact of interruptions on work tasks, we focus on the social interactions between interrupters and interruptees. Prior research largely ignored that social interactions are a key aspect of interruptions (Jett & George, 2003), which led to an incomplete understanding of interruptions (for an exception, Puranik et al., 2021). To overcome this drawback, we illuminated the interpersonal processes taking place during interruptions. Specifically, we found that interruptions invite for social exchanges between interrupters and interruptees. Our results showed that focusing on these social exchanges inherent in interruptions mattered for understanding how interruptions affect interruptees. Interruptions that served to benefit interrupters were positively associated with interruptees' ICB because these interruptions might have allowed interruptees to provide resources to interrupters. In addition, interruptions that served to benefit interruptees implied that interrupters provided resources to interruptees, so that these interruptions were positively associated with interruptees' work engagement.

Third, we ultimately offer a new perspective on how interruptees experience daily interruptions via synchronous communication channels. Viewing interruptions as opportunities for social exchanges opens the door for examining how interruptions can also happen to the interruptees' advantage. That is, we found interruptions to be positively associated with interruptees' job satisfaction by facilitating interruptees' ICB and work engagement. As a result, we expand research that uncovered positive aspects of interruptions, further challenging the dominant view that interruptions are harmful for interruptees (e.g., Bush et al., 2021; Sonnentag et al., 2018). Stated differently, our research contributes to a more balanced picture on how daily interruptions affect interruptees.

### **Limitations and directions for future research**

This study is not without limitations. First, this study examined interruptees' perceived reasons for interruptions rather than the actual reasons for interruptions. Understanding the reasons

for interruptions can be challenging for interruptees, considering that these reasons may arise from affective states and psychological needs that are not always obvious. For instance, interrupters may also interrupt to fulfil their need for belongingness, which may be difficult for interruptees to observe. As a result, interruptees' perceptions of interruption reasons may not be entirely accurate, reducing the precision of our assessment of the interruption categories. To overcome this limitation, researchers could conduct experiments and manipulate the content of interruptions to have control over the actual reasons for interruptions (Bush et al., 2021). In addition, future research could investigate the interrupters' perspective because the interrupters should have greater insight into why they interrupt than the interruptees. For instance, researchers could examine co-worker dyads to test whether interrupters and interruptees attribute the same reasons to interruptions. The degree to which perceptions of interruption reasons align could influence the outcomes of interruptions. Misalignments might lead to misunderstandings between interrupters and interruptees, potentially reducing the effectiveness of interruptions. For example, while Bush et al. (2021) found that interruptions can enhance collaboration, discrepancies in perceptions of interruption reasons might undermine interruptions' potential to foster collaboration. Nevertheless, the perceived reasons for interruptions might be more important in determining interruptees' responses to interruptions than interrupters' actual reasons for interruptions. After all, employees' perceptions of their work environment may be stronger predictors of their attitudes and behaviours than the actual work environment (e.g., Greenberg, 1987).

Second, our study focused on interruptions via synchronous communication channels, that is, face-to-face interactions and phone calls. This focus might also explain why interruptees experienced relatively few interruptions per day, with an average of 2.47 daily interruptions. Despite the relatively low base rate of interruptions, the interruption types were meaningfully related to other constructs, highlighting that even lower frequencies of interruptions can impact employees. Nevertheless, future research should next examine the reasons for interruptions in the context of asynchronous communication channels, such as emails and instant messages. It might be that employees adjust their communication channels to the reasons for why they initiate interruptions. For instance, interrupters might choose synchronous communication channels over asynchronous channels to satisfy belongingness needs because synchronous channels allow for informal and close interpersonal exchanges (Sacco & Ismail, 2014). Nevertheless, given that the communication channels can impact the content and outcomes of interruptions (Nees & Fortna, 2015), we recommend scholars to clearly describe which interruption channels they are examining.

Third, we collected data at times that involved mild contact restrictions due to the coronavirus pandemic. We reduced this problem by controlling for the participants' daily work location and making it a requirement that participants spend at least half of their weekly working hours at a workplace outside the home office. Nevertheless, because the contact restrictions might have affected the experience of interruptions in our sample (Leroy et al., 2021), future research should replicate

our results at times that are not impacted by any contact restrictions.

Fourth, we temporally separated the job-satisfaction measure from the other measures to establish a temporal sequence of mediators and outcome.<sup>8</sup> In addition, employing two measurement points reduces concerns regarding common-methods bias (Podsakoff et al., 2012). Nevertheless, because we measured the interruption categories and the mediators in the same surveys, we cannot infer that interruptions precede ICB and work engagement. To produce a test of mediation that approaches causality, future researchers could measure all constructs at three measurement points and compare the hypothesized causal flow with alternative sequences (Aguinis et al., 2017). Moreover, experimental designs that manipulate the experience of the interruption categories could help to approach causality.

Fifth, in line with most research on work interruptions (e.g., Fletcher et al., 2018; Sonnentag et al., 2018), we studied interruptions using a frequency approach focusing on the accumulated effects of daily interruptions on interruptees. A drawback of our approach is that we assessed all interruptions in the afternoon, which might have affected the accuracy of recall, especially for interruptions early in the morning (Beal, 2015). To reduce recall bias, researchers could measure individual interruption events shortly after their occurrence (Reis et al., 2014). Another approach would be applying a day-reconstruction method designed to facilitate the recall of past interruptive events (Kahneman et al., 2004).

Our study offers additional directions for future research. First, we accounted for the negative aspects of interruptions by adding cognitive exhaustion as an alternative mediator in our model. However, we did not replicate negative effects of interruptions on job satisfaction via cognitive exhaustion (Puranik et al., 2021). Neither the interruption reasons nor the amount of the interruptions predicted cognitive exhaustion. Given that interruptions should be particularly exhausting when they accumulate (Baethge et al., 2015), a likely reason for the lack of effects for cognitive exhaustion is that interruptions in this study were not frequent enough to be cognitively exhausting for interruptees. Future research should explore other mechanisms that account for the potential negative aspects of interruptions via synchronous communication channels. For instance, interruptions via synchronous channels might exert negative effects when they are of long duration. After all, longer interruptions have been found to increase the time needed to resume interrupted tasks (Monk et al., 2008). As another example, interruptions might violate interpersonal justice rules because interruptees typically perceive interruptions as disturbing (Folger & Cropanzano, 2001).

Second, another way to explore negative aspects of interruption reasons would be to uncover further interruption categories, such as interruptions that are perceived as unreasonable. Our focus on interruption reasons implies that we covered interruptions that were perceived to be reasonable, that is, occurred for a justifiable cause. However, interruptions can also be seen as unreasonable (Grotto & Mills, 2023; Parker et al., 2024), especially when interruptions neither serve to benefit the interrupter nor the interruptee. For instance, interruptions might be perceived as unreasonable when

interrupters perform them to procrastinate or to harm interruptees. Our study did not assess these unreasonable interruptions that might negatively affect interruptees and maybe also interrupters.

Third, we found high correlations between the interruption categories (i.e.,  $r = .86$  at the between-person level and  $r = .56$  at the within-person level). As a potential explanation, interruptions in everyday work life might commonly include mixtures of the interruption categories. For instance, interrupters may simultaneously seek task-related information and offer support. Nevertheless, our findings suggest that the two interruption categories can be distinguished and are differentially related to other variables. As a potential next step, future research could examine how interruption episodes that include both interruption categories affect interruptees. To do so, researchers could implement an episodic approach, studying individual interruption episodes in detail (Puranik et al., 2020).

### **Practical implications**

In this study, we examined interruptions via synchronous communication channels (face-to-face interactions and phone calls), which were relatively infrequent in daily occurrence – but nevertheless were associated with positive outcomes. Our research suggests that such interruptions can be opportunities for interruptees to exchange social support. Because mutual social support is a critical resource for workplaces (e.g., Cropanzano et al., 2017), organizations can also take advantage of interruptions. Supporting this reasoning, we found daily interruptions to be positively associated with ICB and work engagement – outcomes that organizations deem highly desirable. ICB and work engagement, in turn, explained the indirect positive effects of work interruptions on interruptees' job satisfaction. Hence, while prior research commonly advised to remove interruptions from workplaces (e.g., Baethge & Rigotti, 2013; Ma et al., 2020), our research shows that interruptions can also be helpful for organizations and should therefore not be fully eliminated.

The positive aspects of interruptions found in this study notwithstanding, practitioners should not neglect the negative aspects of interruptions found in past research (e.g., Keller et al., 2020; Zijlstra et al., 1999). Although we did not replicate that interruptions were cognitively exhausting for interruptees, we do not question that interruptions can also have negative effects for interruptees (Leroy et al., 2020; Puranik et al., 2020). Hence, we recommend practitioners to manage interruptions acknowledging both their positive and negative aspects. For instance, organizations could instruct interruptees to signal interrupters when it is convenient for them to get interrupted, such as by leaving the office door open (Keller et al., 2020).

Moreover, although interruptions may at times be unavoidable to spontaneously get in touch with co-workers (Puranik et al., 2020), organizations should offer opportunities for social interactions through less disruptive means. For example, organizations may provide designated spaces for socializing, such as lunchrooms or communal areas, and incorporate regular work breaks, during which social interactions are encouraged. In addition, organizations may enable more spontaneous meeting scheduling, such as by providing a shared online calendar

where all employees can see each other's availability and arrange meetings without extensive coordination.

## Conclusion

Although social interactions with the interrupters are central to interruptions, past research mainly defined interruptions in terms of how they affect work tasks rather than focusing on their interpersonal aspects. Viewing interruptions through a social-exchange lens and studying interruptions via synchronous communication channels, we focused on the social interactions inherent in interruptions. In doing so, we uncovered two interruption categories that capture the social exchanges between interrupter and interruptee during interruptions: interruptions that serve to benefit the interrupter and interruptions that serve to benefit the interruptee. In a daily diary study, we found that these interruption categories were positively related to interruptees' job satisfaction by contributing to their ICB and work engagement, respectively. Overall, by viewing interruptions as facilitators of social exchanges, we shed light on positive aspects of interruptions for interruptees neglected in prior research.

## Notes

1. While we distinguish between interruptions based on their underlying reasons, other research differentiated between events that disrupt employees' flow on work tasks, such as intrusions, breaks, discrepancies, and distractions (Jett & George, 2003; Leroy et al., 2020; Rennecker & Godwin, 2005).
2. This study is the first publication from a larger research project on employee self-regulation in Germany. This larger project included an additional survey to be completed around noon. This midday survey is not part of the present study.
3. Age statistics are based on the data of 104 participants due to missingness caused by unplausible responses.
4. One of the participants excluded from the final sample indicated that they did not want to disclose their gender and was therefore not included in the dropout analysis.
5. Because the seven negative residual variances were low and non-significant, we also report a model where we constrained the negative residual variances to zero (B. Muthén & Asparouhov, 2011). Model fit was  $\chi^2 = 3,206.011$ ,  $df = 1,685$ ,  $p < .001$ , CFI = 0.929, TLI = 0.924, RMSEA = 0.043, SRMR (within) = 0.048, AIC = 57,014.441.
6. In the first alternative model, six residual variances were negative with estimates ranging from  $-0.001$  ( $SE = 0.005$ ;  $p = 0.920$ ) to  $-0.004$  ( $SE = 0.005$ ;  $p = .468$ ). In the second alternative model, five residual variances were negative with estimates ranging from  $-0.001$  ( $SE = 0.006$ ;  $p = .907$ ) to  $-0.004$  ( $SE = 0.005$ ;  $p = .465$ ). When these residual variances were constrained to zero, model fit of the first alternative model was  $\chi^2 = 3,721.248$ ,  $df = 1,694$ ,  $p < .001$ , CFI = 0.905, TLI = 0.899, RMSEA = 0.039, SRMR (within) = 0.060, AIC = 57,534.168, and model fit of the second alternative model was  $\chi^2 = 4,115.891$ ,  $df = 1,693$ ,  $p < .001$ , CFI = 0.887, TLI = 0.879, RMSEA = 0.042, SRMR (within) = 0.075, AIC = 57,911.077.
7. Results from hypotheses tests remained robust when not allowing for correlations between the three mediator variables.
8. A multilevel path model where job satisfaction was measured at the end of work produced results that were consistent with the model where job satisfaction was measured at bedtime.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

## Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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