

Daily Job Demands and Employee Work Engagement: The Role of Daily Transformational Leadership Behavior

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Using job demands–resources (JD-R) theory, the present study integrates the challenge stressor–hindrance stressor framework and leadership theory to investigate the relationship between daily transformational leadership behavior and employee work engagement. We hypothesized that daily transformational leadership behavior (a) sustains employee work engagement on days characterized by high challenge job demands, and (b) protects work engagement on days characterized by high hindrance job demands. Teachers filled out a short online questionnaire at the end of each workday during a 2-week period ($N = 271 \times 5.68 \text{ days} = 1539$). Results of latent moderated structural equation modeling showed that teachers' daily challenge demands (workload and cognitive demands) had a positive relationship with work engagement on the days transformational leadership was high (vs. low). In addition, teachers' daily hindrance demands (role-conflict, but not family to work conflict) had a negative relationship with work engagement on the days transformational leadership was low (vs. high). These findings show that the function of transformational leadership behavior changes from day to day, and depends on the type of job demand. We discuss the practical and theoretical implications of these findings.

Keywords: challenge stressor–hindrance stressor framework, diary study, JD-R theory, transformational leadership, work engagement

With their charisma and attentiveness to subordinates' needs and opportunities for personal development, transformational leaders can have a significant impact on the functioning of their subordinates (Bass, 1985). Specifically, subordinates of transformational leaders are generally motivated and satisfied with their work, and show above average performance (for meta-analyses, see, e.g., Judge & Piccolo, 2004; Wang, Courtright, & Colbert, 2011). It is therefore not surprising that transformational leadership theory (Bass, 1985, 1999) has attracted enormous research attention. However, it seems unlikely that leaders are able to inspire and challenge their subordinates all the time to the same extent. That is, the use of transformational leadership behavior requires effort, time, and some level of self-control (Furtner, Baldegger, & Rauthmann, 2013), which are known to be finite resources (Baumeister, Bratslavsky, Muraven, & Tice, 1998). Therefore, it is not just important to know *whether* transformational leadership behavior is used, but also *when* this behavior is best used. Accordingly, the central aim of the present quantitative diary study is to further our understanding of transformational leadership and to guide managers in motivating their subordinates by examining when transformational leadership behavior is needed the most.

On the basis of job demands–resources theory (JD-R theory; Bakker & Demerouti, 2014; Demerouti, Bakker, Nachreiner, &

Schaufeli, 2001), we propose that transformational leadership behavior such as being supportive of subordinates' needs and inspiring subordinates with an optimistic vision of the future (Bass, 1985), acts (refers to "behavior") as a valuable job resource that is particularly important on days when job demands are high. The challenge stressor–hindrance stressor framework (Cavanaugh, Boswell, Roehling, & Boudreau, 2000) states that all job demands consume energy, but that hindrance demands thwart personal growth and goal achievement, whereas challenge demands have the potential to contribute to learning and achievement. Indeed, research has shown that both types of demands are positively related to strain and that challenge demands contribute to employee motivation and performance, whereas hindrance demands are detrimental to employee motivation and performance (LePine, Podsakoff, & LePine, 2005). Using this framework, we propose that transformational leadership behavior fosters employee work engagement on the days that subordinates are confronted with high challenge demands (i.e., workload and cognitive demands), and that transformational leadership behavior sustains work engagement on the days that subordinates are confronted with high hindrance demands (i.e., role-conflict and strain-based family to work conflict).

Our study makes two significant contributions to the literature. First, we try to advance transformational leadership theory. Most research on transformational leadership focuses on between-person differences, assuming that leaders are either transformational or not (i.e., trait transformational leadership), ignoring possible within-person differences in transformational leadership. Adopting a dynamic approach to leadership, we theorize that there are meaningful fluctuations in transformational leadership behavior within the same leader and examine when this behavior is needed the most, that is, how leaders can optimally allocate their

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resources. Second, we use the challenge-hindrance stressor framework to fine-tune JD-R theory. We argue that the resources provided by the leader (i.e., transformational leadership behavior) boost the relationship between challenging job demands (i.e., workload, cognitive demands) and employees' work engagement, and buffer the relationship between hindrance demands (i.e., family to work conflict, role-conflict) and employees' work engagement.

Static Versus Dynamic Leadership

Leadership researchers have always been intrigued by the search for the most effective way or person to lead. It is therefore not surprising that transformational leadership theory has received a great deal of scientific attention. Research interest in transformational leadership gained momentum when Bass (1985), building on the work of Burns (1978), introduced his ideas on transformational leadership. Accordingly, transformational leaders are role models (i.e., idealized influence) who inspire and motivate their followers' (i.e., inspirational motivation), are genuinely concerned with their followers' needs (i.e., individualized consideration), and encourage their followers to be creative (i.e., intellectual stimulation). No fewer than five meta-analytic studies support the effectiveness of transformational leadership (e.g., DeGroot, Kiker, & Cross, 2000; Judge & Piccolo, 2004; Lowe, Kroeck, & Sivasubramaniam, 1996; Wang et al., 2011), showing that transformational leaders affect how subordinates feel about their work (e.g., higher job satisfaction and work motivation), and how well subordinates perform their work (e.g., higher in-role and extra-role performance). Most of these studies focus on between-person differences in transformational leadership, capturing transformational leadership as a "style" or behavior in general (i.e., trait transformational leadership measured at a single time point), which have important implications for the selection of effective leaders. Yet, no conclusions can be drawn about leadership development from these studies, because it is assumed that leaders are either transformational, or not. To advance our understanding of transformational leadership, we focus on within-person fluctuations in leadership, acknowledging that leaders may sometimes be unable to provide their subordinates with inspiration and personalized support (see also Breevaart et al., 2014; Breevaart, Bakker, Demerouti, & Derks, 2015). That is, we focus on fluctuations in transformational leadership behavior rather than on trait transformational leadership.

We propose that there is good reason to believe that transformational leadership behavior varies from day to day. For one, leaders are not always physically present at the workplace due to the increased flexibility in working hours and work spaces (e.g., working from home; Baane, Houtkamp, & Knotter, 2010), which is known to neutralize the positive impact of transformational leadership behavior on subordinates' performance (e.g., Howell, Neufeld, & Avolio, 2005). In addition, even if leaders are around, there may be days on which they withdraw themselves from the workplace, for example because of a bad night's sleep, family worries, and/or a bad mood (Barnes, 2012; Hammer, Bauer, & Grandey, 2003; Podsakoff, LePine, & LePine, 2007; Scott & Barnes, 2011). Moreover, leaders may adjust their behavior according to the needs of their subordinates. That is, when subordinates work on a task they are actively engaged in and feel self-

efficacious about, there is less urgency to motivate subordinates to perform their work (Dvir & Shamir, 2003).

Adopting a within-person approach to leadership, a handful of diary studies provide support for the dynamic nature of transformational leadership. For example, in a study among consultants, Tims, Bakker, and Xanthopoulou (2011) showed that subordinates were more engaged in their work on the days that their leader showed more transformational leadership behavior, because subordinates were more optimistic on these days. In a similar vein, Breevaart et al. (2014) showed that naval cadets were more engaged in their work on the days their leaders used more transformational leadership behavior, and rewarded good performance (i.e., contingent reward). The reason for this was that transformational leaders provided their followers with more job resources. Moreover, the latter study showed that cadets in a leadership position used both transformational and transactional leadership behavior within the same day, and that most variance in both types of leadership could be explained by within-person differences. Following this dynamic view on leadership, in the present study, we examine on which days transformational leadership behavior should be used to sustain and/or increase subordinates' work engagement.

Job Demands–Resources Theory

According to JD-R theory, the degree to which employees are energetic and enthusiastic about their work, and highly concentrated on their work (i.e., engaged), is greatly affected by the work environment (Bakker & Demerouti, 2014; Demerouti et al., 2001). Specifically, JD-R theory distinguishes two categories of job characteristics; job resources and job demands. Job resources are aspects of the job that stimulate personal growth and accomplishment and initiate a motivational process. For example, opportunities for development and performance feedback may fulfill employees' need for competence, and consequently, their willingness to invest themselves in their work role (Kahn, 1990). Job demands are proposed to initiate an energy depletion process, consuming energetic resources, which may result in job strain and health complaints. For example, constantly trying to deal with conflicting standards may wear out employees, decreasing their willingness and ability to invest themselves in their work role.

Whereas it is well established that job resources like autonomy and opportunities for development contribute to employees' engagement (for a meta-analysis, see Halbesleben, 2010), the relationship between job demands and employee engagement is less clear. A possible explanation for the inconsistent findings regarding the link between job demands and employees' feelings of engagement in their work can be found in the challenge stressor–hindrance stressor framework that was first proposed by Cavanaugh et al. (2000). Accordingly, all job demands cost energy, but some demands hinder personal development and goal achievement (i.e., hindrance demands), whereas other demands create opportunities for personal growth and achievement (i.e., challenge demands). Hindrance demands such as role-conflict, role ambiguity, and hassles are unnecessary obstacles toward goal achievement and personal learning that demotivate employees. In contrast, challenge demands such as workload and time pressure result in a sense of accomplishment when they are overcome.

In support of this challenge stressor–hindrance stressor distinction, Crawford, LePine, and Rich (2010) meta-analytically showed that challenge demands (e.g., workload and time urgency) and job resources (e.g., autonomy and feedback) were positively related to employee engagement, whereas hindrance demands (e.g., administrative hassles and role-conflict) were negatively related to employee engagement. Tadić, Bakker, and Oerlemans (2013) found similar results in their daily diary study among teachers. Specifically, they showed that teachers were more engaged in their work on days that they had more challenging demands, because they experienced more self-concordant work motivation on these days. The opposite was true for hindrance demands, that is, teachers experienced less self-concordant work motivation on days they were confronted with more hindrance demands, and consequently, teachers were less engaged in their work on these days. In the present study, we focus on clear examples of challenge (i.e., workload, cognitive demands) and hindrance (i.e., role-conflict, family to work conflict) demands that have been shown to either contribute or be detrimental to employee motivation and performance (Halbesleben, 2010; LePine et al., 2005) and that are relevant to our sample of teachers.

Boosting Effect

Besides the main effects of resources and demands on employee well-being, JD-R theory also proposes two interaction effects. The first interaction effect is known as the boosting effect: job resources particularly boost employee engagement when challenging job demands are high (Bakker & Demerouti, 2014). It seems likely that employees feel especially engaged in their work on days when they have a sufficient amount of resources available to deal with challenging job demands. For example, employees who receive performance feedback from their supervisor when they work under high pressure may learn to be more efficient and effective, contributing to employees' feelings of competence. Investigating the role of personal resources such as optimism and self-efficacy, Bakker and Sanz-Vergel (2013) showed that nurses were more work engaged in the weeks that both emotional demands and personal resources were high. Tadić, Bakker, and Oerlemans (2015) found a similar pattern in their daily diary study among schoolteachers, showing that challenging demands (e.g., workload and time urgency) were more positively related to employees' positive affect and work engagement when job resources such as social support from colleagues and performance feedback were high (vs. low). Building on this knowledge, we examine the interactions between daily challenge demands (i.e., workload and cognitive demands) and transformational leadership in predicting employees' daily engagement. Furthermore, rather than looking at the broad categories of challenge (and hindrance) demands (Tadić et al., 2015), in the present study we look at the interaction effect between each specific demand and transformational leadership.

Cognitive demands refer to the degree to which the job requires employees to be highly concentrated on their work, whereas workload means that employees have a lot of work to do and have to work hard to finish their tasks (Bakker, Demerouti, Taris, Schaufeli, & Schreurs, 2003). We expect that even though days with high cognitive demands and workload cost energy, leaders may help to deal with these demands and thereby stimulate subordinates' feelings of engagement, using transformational leader-

ship behavior. That is, transformational leadership behavior such as communicating plans for the future creates a sense of meaningfulness regarding the work that subordinates have to perform (Arnold, Turner, Barling, Kelloway, & McKee, 2007). Also, challenging employees on an intellectual level by encouraging them to think about solutions for the problems they face in their work increases subordinates' self-efficacy (e.g., Nielsen, Yarker, Randall, & Munir, 2009; Pillai & Williams, 2004). These behaviors make it likely that demands such as cognitive load and workload are viewed as opportunities to learn and demonstrate competence (i.e., become challenging). Accordingly, our first hypothesis states:

Hypothesis 1: Daily transformational leadership behavior moderates the relationship between (a) cognitive demands and (b) workload on the one hand and employee work engagement on the other hand. That is, the relationship between challenge demands (i.e., cognitive demands and workload) and employee engagement is stronger on the days that transformational leadership behavior is high (vs. low).

Buffering Effect

The second interaction effect proposed by JD-R theory is known as the buffering effect. Accordingly, job resources protect employees from the negative effect of hindering job demands. The reason for this is that job resources replenish energetic resources that are lost when meeting job demands, by providing employees with tools to cope with stressors at work (Bakker & Demerouti, 2014). In a daily diary study among schoolteachers, Tadić et al. (2015) found support for the buffering effect of job resources. Specifically, they found that teachers experienced less positive affect and feelings of engagement on days that hindrance demands (i.e., excessive bureaucracy, role ambiguity, role-conflict, and hassles) were high, but this negative effect was reduced on the days that job resources were high (vs. low). Building on the latter study, we examine the relationship between daily hindrance demands (i.e., role-conflict and family to work conflict) and employees' daily work engagement as moderated by daily transformational leadership.

Role-conflict means that employees have to deal with conflicting assignments and/or rules and family to work conflict (FWC) means that employees have a hard time focusing on their work because of family responsibilities/problems (Bakker et al., 2003). We argue that daily transformational leadership behavior acts as a valuable resource that protects against the negative impact of these hindrance demands on subordinates' work engagement. That is, on days that subordinates experience conflict between different roles they have to fulfill or are occupied with worries about the family, they are unable to fully concentrate on their work and waste valuable resources such as time and effort thinking about issues that may undermine their motivation to perform their work. Leaders who provide individualized support to subordinates on these days and focus subordinates' attention on the positive side of their work, may buffer the detrimental influence of these hindrance demands on subordinates' feelings of vigor, dedication, and absorption (i.e., engagement). Furthermore, it has been shown that employees have access to more resources such as autonomy and social support on the days when their leader shows more transformational leadership behavior (Breevaart et al., 2014), which pro-

vides employees with the necessary tools to deal with the demanding aspects of their work. Hence, we hypothesize that daily transformational leadership behavior moderates the relationship between daily job demands and subordinates' daily work engagement:

Hypothesis 2: Daily transformational leadership behavior moderates the relationship between (a) role-conflict and (b) family to work conflict on the one hand and employee work engagement on the other hand. That is, the relationship between hindrance demands (i.e., role-conflict and family to work conflict) and employee work engagement is weaker on the days that transformational leadership behavior is high (vs. low).

Please see [Figure 1](#) for an overview of the proposed interactions between daily challenge/hindrance demands and transformational leadership behavior.

Method

Participants and Procedure

Participants were elementary schoolteachers from The Netherlands who filled out an online questionnaire about their leaders' (school principals') behavior, their own level of work engagement, and the perceived job demands at the end of each workday for a period of 10 days. One of our reviewers expressed his or her concerns about the relevance of our research question on leadership to our particular sample. To ensure relevance, we collaborated closely with the HR department as well as the school principals and teachers before we conducted the study. Teachers spend most of their work hours on teaching, preparing classes, and meeting and interacting with parents. Furthermore, teachers indicated that they communicate daily with their school's principal, mainly through face-to-face interactions. The school principal can show transformational leadership behavior by, for example, listening to the problems teachers face on a specific day (e.g., talking to parents about their child misbehaving in class), asking teachers what aspects of their work they enjoy (i.e., enthuse them about their work tasks), and informing teachers about opportunities to develop themselves further (e.g., suggesting to participate in a time-management workshop when they have difficulties managing

their tasks). In the current study, 42.9% of the variance in transformational leadership was explained at the day level, indicating that the extent to which the same school principal uses transformational leadership varies greatly from day to day.

Teachers were informed about the study through their organization and received an e-mail from the first author with the invitation to the online questionnaire at the end of every day. On the first day, participants were requested to fill out some additional questions about demographics, after which they received the same short questionnaire on every succeeding day. To ensure anonymity and confidentiality and still be able to identify the questionnaires filled out by the same person on different days, we created panels in Qualtrics containing the email address and associated code (i.e., 1, 2, 3, etc.) of all participants. A few weeks after the data was collected, participants received a report about the results of the study.

In total, 1109 teachers received an invitation to participate in the study, of which 585 teachers (53%) filled out at least one of the questionnaires. Because we were interested in within-person fluctuations in our study variables, we kindly requested our participants to fill out the questionnaires for at least five days (i.e., regular working week). Accordingly, we removed 314 participants who filled out fewer than five questionnaires from further analyses, resulting in a final sample of 271 teachers (24% of the original sample that was approached) who filled out the questionnaires for 5.68 days on average. The total number of data points is considerable, namely 271×5.68 days = 1539 observations. To ensure that teachers were not forced to answer questions about their principal's behavior on the days that they did not interact, we asked teachers to indicate whether they had interacted with their principal. If they had not interacted with their principal on a specific day, they did not receive any questions about their principal's behavior. On average, teacher interacted with their principal on 5.68 days out of the 7.31 days that they filled out the questionnaire. The sample includes 219 women (80.8%) and 52 men (19.2%), with a mean age of 46.25 ($SD = 11.25$), ranging from 24 to 63 years. Most participants were married or cohabiting (80.8%), finished higher vocational training (79.7%), and had a permanent contract (99.6%). On average, participants had 22.33 ($SD = 11.07$) years of work experience and worked in the current organization for a period of 17.34 ($SD = 10.78$) years.

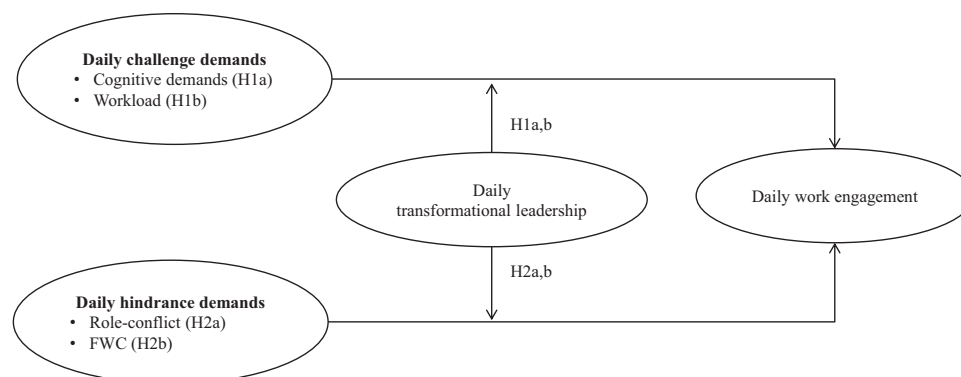


Figure 1. Hypothesized interaction between daily demands and daily transformational leadership. FWC = family to work conflict.

Of the 1139 teachers invited to participate in our study, 271 teachers filled out the survey. Although this is a large sample with high statistical power ($N = 271 \times 5.68$ days = 1539 observations), the response rate is quite low (23.79%), meaning that our results could be affected by nonresponse bias. Those who participated in our study may differ from those who did not participate. To test for such a bias, we performed an attrition analysis to examine differences between those employees who participated 5 days or more ($N = 271$) and those who participated less than 5 days and were removed from our final sample ($N = 314$). There were no significant gender, age, marital status, education and work experience differences between these two groups. Yet, we did find that those who participated less than five days were on average a bit less engaged in their work ($\Delta M = .214, p < .01$), perceived their leader as less transformational ($\Delta M = .221, p < .01$), and had a lower quality relationship with their leader ($\Delta M = .314, p < .001$). However, because we examined *within-person* fluctuations (i.e., fluctuations from employees' average experiences) rather than between-person differences (i.e., employees' overall experiences), it seems unlikely that our results have been influenced by nonresponse bias. That is, rather than looking at absolute differences in work engagement (i.e., low/high), we look at fluctuations in work engagement from people's baseline (i.e., lower/higher).

Measures

We adapted the time-frame of all questionnaires so the items refer specifically to the day, which is common practice in diary research (Ohly, Sonnentag, Niessen, & Zapf, 2010; Xanthopoulos & Bakker, 2013). Participants could answer all statements on a 7-point scale, ranging from 1 (*completely disagree*) to 7 (*completely agree*). All scales showed good alpha reliabilities (please see Table 1).

Daily challenging demands. Daily cognitive demands and daily workload were measured with three items each (Bakker et al., 2003). An example item is: "Today, my work required a high level of concentration" (i.e., cognitive demands) and "Today, I had to work very hard" (i.e., workload).

Daily hindrance demands. Daily hindrance demands were measured with three items each. An example item of role-conflict is: "Today, I had to deal with conflicting guidelines or rules" (Rizzo, House, & Lirtzman, 1970). An example item of strain-

based family to work conflict is: "Today, I did not enjoy my job because I worried about my home situation" (Geurts et al., 2005).

Day-level transformational leadership. Day-level transformational leadership was measured with four different scales from the Transformational Leadership Inventory (TLI; Podsakoff, MacKenzie, Moorman, & Fetter, 1990) that are most closely related to Bass' (1985) conceptualization of transformational leadership. Example items are: "Today, my leader inspired me with his/her plans for the future" (articulating vision; 3 items), "Today, my leader insisted on only the best performance" (high performance expectations; 3 items), "Today, my leader behaved in a manner thoughtful of my personal needs" (individual support; 4 items), and "Today, my leader stimulated me to rethink the way I do things" (intellectual stimulation; 4 items).

Day-level work engagement. State work engagement was measured with the 9-item Utrecht Work Engagement Scale (UWES; Breevaart et al., 2014; Schaufeli, Bakker, & Salanova, 2006). The UWES measures the three engagement dimensions with three items each. Example items are: "Today, I felt bursting with energy" (vigor), "Today, I was inspired by my job" (dedication), and "Today, I was immersed in my work" (absorption).

Strategy of Analysis

We used Mplus to test our interaction hypotheses (Muthén & Muthén, 1998–2014). We had a two-level structure, with days ($N = 1539$) nested in individuals ($N = 271$). Because we were interested in relationships at the within-person (i.e., day) level, we used the Mplus "TYPE=COMPLEX" option to control for the variance that may be explained by between-person (i.e., baseline levels of all state variables across days) differences. We used the latent moderated structural equations (LMS) approach (Klein & Moosbrugger, 2000) to estimate our models. The LMS approach results in robust parameter estimates and standard errors, and is robust against mild violations of distributional assumptions (Klein & Moosbrugger, 2000). Furthermore, this approach allows us to compare the fit of the model to the fit of a linear structural equation model. Because fit indices regularly used to assess the fit of structural equation models (e.g., CFI, RMSEA) are not yet available in Mplus for latent moderated structural equation models, we used the -2Log-likelihood difference test to assess the fit of our models. Specifically, we compared the model including the inter-

Table 1

Means, Standard Deviations, Within-Day Level Inter-Correlations, and Internal Consistencies (Cronbach's Alphas on the Diagonal) Between the Study Variables, $N = 271$ Persons, $N = 1,539$ Days

Variable	<i>M</i>	<i>SD</i>	1-ICC	1	2	3	4	5	6
1. Daily cognitive demands	5.61	1.16	45.5%	(.85–.96)					
2. Daily workload	4.96	1.38	43.3%	.76***	(.81–.87)				
3. Daily FWC	1.58	1.03	38.8%	-.06	-.05	(.89–.98)			
4. Daily role-conflict	1.97	1.09	39.8%	.05	.16***	.24***	(.75–.88)		
5. Daily transformational leadership behavior	3.83	1.06	42.9%	.16***	.13**	.04	.22***	(.86–.91)	
6. Daily work engagement	5.22	.98	54.9%	.18***	.07	-.25***	-.23***	.09*	(.90–.92)

Note. FWC = Family-work conflict. The intraclass correlation coefficient (ICC) is calculated by dividing the between-person variance (τ_{00}) by the sum of τ_{00} and the within-person variance (σ^2). 1-ICC refers to the percentage of within-person variance observed for the variable.

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

action term (M1) to the model excluding the interaction term (M0). For the formulas to compute a chi-square difference test based on the log-likelihood values and scaling correction factors provided by Mplus we refer the reader to the paper by Satorra and Bentler (2001). To plot our interactions, we used software developed by Dawson and Richter (2006).

According to Villa, Howell, Dorfman, and Daniel (2003), one reason why so little is known about moderators in leadership research is that multicollinearities increase the variance of the test statistics to the point that positive predictors produce negative coefficient estimates and the other way around. Put differently, multicollinearity makes it more difficult to find interaction effects. Also, coefficient estimates can hardly be trusted and the likelihood of both Type I and Type II errors increase due to multicollinearity. Because the different job demands in our study are highly correlated, we purposefully avoided these problems by testing our interaction effects separately. This approach has been successfully used by other leadership researchers such as Dionne, Yammarino, Atwater, and James (2002). As Cohen (1990) noted: "less is more." That is, more statistical test validity, more power, and more clarity in the meaning of results.

Results

Descriptive Statistics

Table 1 shows the means, standard deviations, internal consistencies, intraclass correlations (ICC), and correlations between our study variables. The ICCs indicate that about half of the variance in our study variables is explained by differences within persons (ranging from 38.8% in FWC to 54.9% in work engagement).

Results of Latent Structural Equation Modeling Analyses

Measurement model. We started with a confirmatory factor analysis (CFA) to examine the construct validity of our study variables. In the CFA, we included the six study variables and their indicators; cognitive demands (3 items), workload (3 items), role-conflict (3 items), FWC (3 items), transformational leadership (4 dimensions; vision, high performance expectations, individual support, and intellectual stimulation), and work engagement (3 dimensions; vigor, dedication, absorption). This six-factor model showed a good fit to the data ($\chi^2(137) = 555.36$; CFI = .96; RMSEA = .04; SRMR = .04), and all indicators loaded significantly on their intended latent factor (all factor loadings > .25; $p < .001$). After showing the construct validity of our variables, we continued testing our moderation hypotheses.

Moderation effects. Hypothesis 1a states that daily transformational leadership behavior moderates the relationship between cognitive demands and employees' work engagement in such a way that the relationship between cognitive demands and employee engagement is stronger on the days that transformational leadership behavior is high (vs. low). The results of the latent moderated structural equation analyses supported this hypothesis ($b = .15$, $SE = .05$, $p < .001$, CI [.07, .24]; see Figure 2A). From Table 2 it becomes clear that our hypothesized model including the interaction between daily cognitive demands and daily transformational leadership fitted better to the data than the model includ-

ing the main, but not the interaction effect ($\Delta-2\text{Log-likelihood}(1) = 13.90$; $p < .001$). This means that—as predicted—transformational leadership changes the meaning of cognitive demands.

Furthermore, in line with Hypothesis 1b, we found that workload contributed to employees' engagement on days that the leader showed more transformational leadership behavior ($b = .11$, $SE = .05$, $p < .01$, CI [.03, .20]; see Figure 2B). Again, comparing M0 to M1 showed that the model including the interaction between daily workload and daily transformational leadership behavior fitted better to our data than the main effect model ($\Delta-2\text{Log-likelihood}(1) = 7.13$; $p < .01$; see Table 3). Thus, it seems that cognitive demands and workload are particularly experienced as challenging on the days that the leader shows high (vs. low) transformational leadership behavior.

Hypothesis 2a states that the relationship between daily role-conflict and employees' work engagement is weaker on days that leaders show high (vs. low) daily transformational leadership behavior. Our results lend support for this hypothesis ($b = .09$, $SE = .04$, $p < .05$, CI [.01, .17]; see Figure 2C). Accordingly, it seems that the hindering effect of daily role-conflict is buffered on the days that leaders show high (vs. low) transformational leadership behavior. Table 4 shows that the fit of our hypothesized model (M1) increases compared with the null model ($\Delta-2\text{Log-likelihood}(1) = 4.85$; $p < .05$), indicating that the model including the interaction between daily role-conflict and daily transformational leadership behavior fitted better to the data than the model including only the main effect.

Finally, we predicted in Hypothesis 2b that the relationship between daily FWC and employee work engagement is less strong on days that transformational leadership behavior is high (vs. low). Contrary to our expectations, daily transformational leadership behavior did not buffer the hindering effect of FWC on employees' engagement ($b = .04$, ns ; see Table 5).

Additional Exploratory Analyses

To explore the moderation effect of the different transformational leadership dimensions (i.e., high performance expectations, vision, intellectual stimulation, and individual consideration) in the relationship between daily job demands and daily employee work engagement, we computed 16 additional moderated structural equation models. Overall, the results were highly similar to the findings reported above. First, we found that none of the transformational leadership dimensions moderated the relationship between FWC and employee work engagement. Second, we found that high performance expectations and intellectual stimulation strengthened the positive relationship between challenge demands and employee work engagement and buffered the negative relationship between daily role-conflict and employee work engagement. For vision, we found similar effects as for high performance expectations and intellectual stimulation, however the interaction effect between daily role-conflict and employee work engagement was only marginally significant ($p < .10$). The results regarding individual consideration were opposite to the findings for overall transformational leadership. Although most interactions with this subdimension did not reach significance, the general pattern showed that individual consideration boosted (instead of buffered) the negative

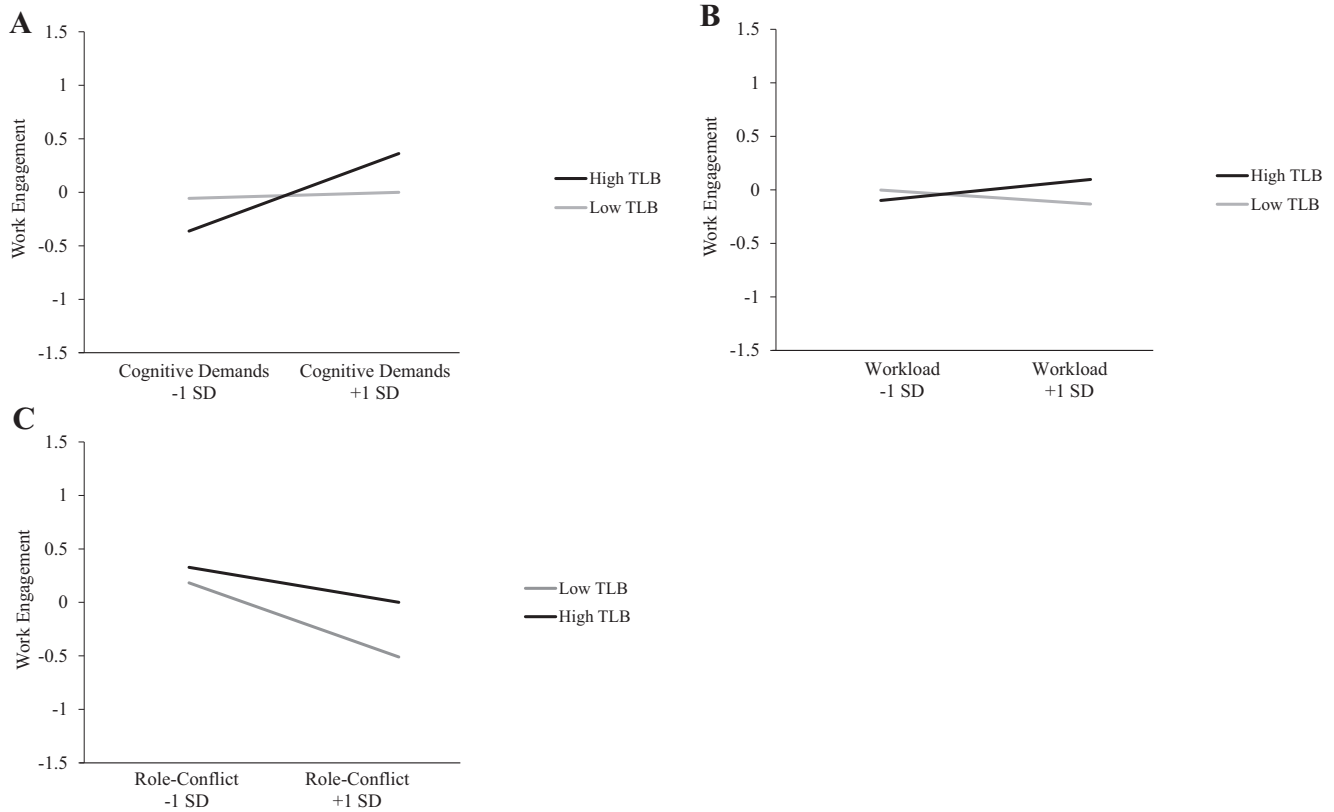


Figure 2. (A, B, C) Daily Transformational leadership behavior (TLB) interactions with job demands (cognitive demands, workload, and role-conflict) for work engagement.

effect of role-conflict and hampered (instead of boosted) the positive effect of challenge demands.

Discussion

In the present study, using JD-R theory, we integrated the challenge stressor-hindrancer stressor framework and leadership theory to investigate the relationship between daily transformational leadership behavior and employee work engagement. Our study is unique in that it is one of the few studies that focuses on fluctuations in transformational leadership behavior and acknowledges that this behavior is a finite resource that may vary across days. We show that transformational leadership behavior boosts employees' engagement when challenge demands (i.e., cognitive demands and workload) are high, and buffer the impact of hindrance demands (i.e., role-conflict but not FWC) on employees' engagement.

Theoretical Implications

Integrating the challenge stressor-hindrancer stressor framework and JD-R theory, we showed that employees feel more engaged in their work on days that cognitive demands are high whereas they feel less engaged when they experience high FWC and role-conflict. The latter finding is consistent with the meta-analysis by Crawford et al. (2010), which showed that role-conflict is a hindrance demand that reduces employees' feeling of engagement

($\rho = -.24$). In addition to the challenge demands (i.e., job responsibility, time urgency, and workload) related to employees' engagement by Crawford et al. (2010), we showed that employees are also more engaged in their work when cognitive demands are high (i.e., challenge demand). Thus, our study shows that it is important to differentiate between demands that only consume energy (i.e., hindrance demands) and demands that cost energy but simultaneously contribute to learning and goal achievement (i.e., challenge demands), because they have different effects.

In line with our expectations and previous research (e.g., Breevaart et al., 2014; Tims et al., 2011), the use of transformational leadership behavior by the school principals varied from day to day within the same person. That is, about half of the variance in this behavior was explained at the day level. We showed that transformational leadership behavior was especially important on days that demands were high. Specifically, teachers were more engaged in their work on days that cognitive demands and workload were high *and* the school principal used more transformational leadership behavior. In other words, teachers were engaged by challenge demands (i.e., cognitive demands and workload) on days that they were inspired, intellectually challenged, and supported in their needs by the school's principal. Apparently, the transformational leadership behavior shown by the school principal helped teachers to manage the cognitive demands and the workload as challenges to boost engagement.

Table 2
Results of the Interaction Between Daily Cognitive Demands and Daily Transformational Leadership Behavior on Subordinates' Daily Work Engagement

Variable	Work engagement			
	M0		M1	
	<i>b</i> *	<i>SE</i>	<i>b</i>	<i>SE</i>
Day-level main effects				
Cognitive demands	.17***	.05	.18***	.04
TLB	.06	.05	.03	.05
Day-level interaction effect				
Cognitive demands × TLB			.15***	.05
Model fit indices				
CFI	.97		N/A ^a	
RMSEA	.04		N/A ^a	
SRMR	.05		N/A ^a	
-2Log-likelihood	-23937.37		-23920.52	
Scaling correction factor for MLR	3.55		3.51	
Δ -2Log-likelihood			13.90***	
<i>df</i>	33		34	

Note. TLB = transformational leadership behavior; MLR = maximum likelihood estimation with robust standard errors.
^a These fit indices are not yet available in Mplus for latent moderated structural equations.
 *** *p* < .001.

Furthermore, teachers' feelings of engagement in their work were less negatively affected by the experience of role-conflict on days that the school principal used more transformational leadership behavior. That is, transformational leadership behavior such as stimulating teachers to challenge the status quo and supporting teachers in their needs, buffered the negative impact of daily hindrance demands (i.e., role-conflict) on teachers' daily work

Table 3
Results of the Interaction Between Daily Workload and Daily Transformational Leadership Behavior on Subordinates' Daily Work Engagement

Variable	Work engagement			
	M0		M1	
	<i>b</i> *	<i>SE</i>	<i>b</i>	<i>SE</i>
Day-level main effects				
Workload	.04	.05	.05	.04
TLB	.08	.05	.07	.05
Day-level interaction effect				
Workload × TLB			.11**	.05
Model fit indices				
CFI	.97		N/A ^a	
RMSEA	.04		N/A ^a	
SRMR	.05		N/A ^a	
-2Log-likelihood	-26080.24		-26071.27	
Scaling correction factor for MLR	3.01		2.99	
Δ -2Log-likelihood			7.13**	
<i>df</i>	33		34	

Note. TLB = transformational leadership behavior; MLR = maximum likelihood estimation with robust standard errors.
^a These fit indices are not yet available in Mplus for latent moderated structural equations.
 ** *p* < .01.

Table 4
Results of the Interaction Between Daily Role-Conflict and Daily Transformational Leadership Behavior on Subordinates' Daily Work Engagement

Variable	Work engagement			
	M0		M1	
	<i>b</i> *	<i>SE</i>	<i>b</i>	<i>SE</i>
Day-level main effects				
Role-conflict	-.26***	.05	-.26***	.05
TLB	.15***	.05	.16***	.05
Day-level interaction effect				
Role-conflict × TLB			.09*	.04
Model fit indices				
CFI	.96		N/A ^a	
RMSEA	.05		N/A ^a	
SRMR	.06		N/A ^a	
-2Log-likelihood	-24941.93		-24937.96	
Scaling correction factor for MLR	3.53		3.48	
Δ -2Log-likelihood			4.85*	
<i>df</i>	33		34	

Note. TLB = transformational leadership behavior; MLR = maximum likelihood estimation with robust standard errors.
^a These fit indices are not yet available in Mplus for latent moderated structural equations.
 * *p* < .05. *** *p* < .001.

engagement. This pattern of findings suggests that leaders can be an important job resource for subordinates, because leaders help subordinates reach their organizational goals even under working conditions that are straining. We expected to find a similar pattern for family to work conflict (FWC), yet transformational leadership behavior did not protect teachers from the daily negative influence

Table 5
Results of the Interaction Between Daily FWC and Daily Transformational Leadership Behavior on Subordinates' Daily Work Engagement

Variable	Work engagement			
	M0		M1	
	<i>b</i> *	<i>SE</i>	<i>b</i>	<i>SE</i>
Day-level main effects				
FWC	-.26***	.05	-.22***	.04
TLB	.10***	.05	.11*	.05
Day-level interaction effect				
FWC × TLB			.05	.07
Model fit indices				
CFI	.97		N/A ^a	
RMSEA	.04		N/A ^a	
SRMR	.05		N/A ^a	
-2Log-likelihood	-22160.12		-22159.63	
Scaling correction factor for MLR	4.76		4.73	
Δ -2Log-likelihood			.29	
<i>df</i>	33		34	

Note. FWC = family to work conflict; TLB = transformational leadership behavior; MLR = maximum likelihood estimation with robust standard errors.
^a These fit indices are not yet available in Mplus for latent moderated structural equations.
 * *p* < .05. *** *p* < .001.

of FWC on their feelings of vigor, dedication, and absorption. A possible explanation for this result may lie in the fact that although FWC is a job demand in the sense that it distracts employees from their work, the FWC is caused by problems experienced in another life domain, namely home (not work). Although leaders may be well equipped to influence the demands that originate at the workplace, they may be less able to influence demands stemming from the home domain. For example, leaders may not know that employees worry about family issues while being at work or they may not be able to help solve issues such as worries about the health of a family member or the school performance of a child.

In the present study, we followed Cavanaugh et al.'s (2000) challenge stressor-hindrance stressor framework, which states that job demands are either challenging (e.g., workload) or hindering (e.g., role-conflict). Our results generally support this challenge-hindrance stressor distinction. That is, the main effects of role-conflict ($-.23, p < .001$) and FWC ($-.25, p < .001$) on follower work engagement were negative, whereas cognitive demands (.18, $p < .001$) was positively related to follower work engagement. However, there was no main effect of workload (.07, $p = .104$) on followers' work engagement. It seems that for workload to be challenging, employees need sufficient resources (i.e., transformational leadership) to cope with this job demand (see also, González-Morales & Neves, 2015).

Research has shown that transformational leaders are successful in creating a resourceful work environment for their employees. For example, in their cross-sectional survey study, Piccolo and Colquitt (2006) showed that transformational leadership contributed to employees' perceptions of Hackman and Oldham's (1976) core job characteristics. In a similar vein, Nielsen, Randall, Yarker, and Brenner (2008), using a longitudinal design, showed that subordinates perceive their work environment more positively when their leader showed more transformational leadership behavior. Breevaart et al. (2014) found a similar pattern in their daily diary study among navel cadets; subordinates received more social support from their colleagues and had more freedom in the execution of their task on days that leaders showed more transformational leadership behavior. The current study adds to this body of work by showing that the leader's behavior is also a valuable resource in itself and its effectiveness is dependent on the type of stressor (i.e., hindering or challenging) that employees are confronted with—on a daily basis. These results are interesting in the light of situational leadership, showing that the use of transformational leadership behavior is dependent on the day and the effectiveness of this behavior is dependent on the situation (i.e., experienced job demands).

In a recent critical review of transformational leadership research, Van Knippenberg and Sitkin (2013) raise questions regarding the measurement of transformational leadership. They state, for example, that transformational leadership is confounded with its effects, and that measurement tools fail to reproduce the dimensionality of transformational leadership specified by theory. In response to these critiques, our study shows support for the construct and discriminant validity of transformational leadership behavior when measured on a daily basis. Specifically, our measurement model showed that all four transformational leadership dimensions can be distinguished from one another and they all load significantly on the latent factor "transformational leadership behavior". Furthermore, our confirmatory factor analysis showed a

good fit to the data for our measurement model distinguishing transformational leadership from five other factors (i.e., FWC, role-conflict, cognitive demands, workload, and employee engagement). Finally, our exploratory analyses showed that one of the transformational leadership dimensions—that is, individual consideration—interacted differently (albeit nonsignificantly) with workload, cognitive demands, and role-conflict compared to the other three transformational leadership dimensions. It would be interesting for future research to follow up on this result and find out whether the different dimensions of transformational leadership can play different roles. For example, it is possible that social support from the leader (i.e., individualized consideration) increases the negative effects of job demands, because subordinates hold their leader responsible for having to deal with these demands.

Practical Implications

Because of their focus on trait transformational leadership, the practical implications of most research on transformational leadership are limited to the selection of those in a leadership position. Adopting a dynamic approach to leadership, the practical implications of the current study can be extended to leadership development. That is, we showed that the leader's behavior varies from day to day, meaning that on some days leaders use more or less transformational leadership behavior compared with their baseline (i.e., average transformational leadership behavior over two weeks). Because transformational leadership behavior is a limited resource (Furtner et al., 2013), it is important for leaders to know when this behavior is best used. Our research among a sizable sample of teachers suggests that this behavior is most important on days that job demands (i.e., cognitive demands, workload, and role-conflict) are high. So, when employees are for example working on a cognitively demanding project or when an important deadline is approaching at the end of the day, it is especially important for leaders to use transformational leadership behavior. It is under these circumstances that leaders can challenge their subordinates and stimulate their subordinates' work engagement, which is known to stimulate job performance (for meta-analyses see Halbesleben, 2010; Rich, LePine, & Crawford, 2010).

Leaders can be trained to become more individually considerate, intellectually stimulating, and envisioning (Barling, Weber, & Kelloway, 1996). Our results suggest that these training programs should not only explain what transformational leadership is and how to use it, but should also focus on the dynamics of leadership. That is, leaders may sometimes show more or less transformational behavior, and this behavior has a significant influence on subordinates in a very short time frame (i.e., within the day). Furthermore, these training programs should also focus on when transformational leadership behavior is most important.

Limitations and Implications for Future Research

As with every study, the present study is not without limitations. First, we relied on employees' self-reports, which may introduce the problem of common method variance. Yet, we consciously chose this particular design, because we were interested in how demands and leader behavior were perceived by

employees (Conway & Lance, 2010), and in private experiences (i.e., work engagement). For example, it seems unlikely that demands affect employees' engagement in their work if they are not perceived as such. Furthermore, we performed a confirmatory factor analysis and showed that the measurement model (consisting of cognitive demands, workload, role-conflict, family to work conflict, transformational leadership behavior, and employee work engagement) fits very well to the data—no problems of convergence arose. Also, we focused on daily fluctuations from a person's baseline (i.e., average over two weeks), thereby controlling for the person's mean score on all variables. Finally, Siemsen, Roth, and Oliveira (2010) showed that interaction effects cannot be artifacts of common method variance, and are even more difficult to find if common method variance is an important concern. We find evidence for three interactions at the day-level, and thus it seems that common method variance is not a major issue in our study.

Furthermore, some job demands in our study were highly correlated (e.g., .76 between cognitive demands and workload), introducing the problem of multicollinearity. However, we were not surprised to find that cognitive demands and workload are highly correlated. That is, when one has many tasks to fulfill (i.e., high workload), this likely requires one to be highly concentrated (i.e., high cognitive demands) to finish these tasks. To avoid multicollinearity from biasing our results, we followed the suggestions by Dionne et al. (2002) and Villa et al. (2003) and tested our interaction effects separately. As a result, we had more statistical power and more clarity in the meaning of the results (Cohen, 1990). Moreover, the measurement model showed that cognitive demands and workload could be empirically distinguished, indicating that they do have unique properties.

We hope that our study inspires researchers to further investigate the dynamic parts of leadership. We showed that there are meaningful fluctuations in leadership behavior that have a significant influence on subordinates, which raises questions about the antecedents of these fluctuations. What are personal and/or situational contingencies that may explain these fluctuations in leaders' behavior? The leaders' own constellation of job demands and resources may be important in this regard. For example, it seems likely that leaders are less able to inspire and stimulate their subordinates on days that leaders experience many hindrance demands and few resources themselves, whereas they may be more likely to show transformational leadership behavior when they are challenged and engaged.

The present study provides valuable insights in how the interplay between different job demands and transformational leadership behavior influences subordinates' work engagement. Yet, our findings are confined to our sample of elementary school teachers. Therefore, future research is needed to replicate our results in different samples to test the generalizability of our findings. Additionally, future research may use alternative research methods such as multiple source ratings to reduce the influence of common method bias and multiple measurements a day to establish causality (see Breevaart et al., 2015). Following JD-R theory, future research may also look at how the interplay between job demands and transformational leadership is related to subordinates' daily burnout levels. JD-R theory proposed that hindrance demands not only reduce employees' feelings of engagement in their work, but especially increase levels of burnout experienced by the employees

(Bakker & Demerouti, 2014). On the basis of the results of the current study, transformational leadership behavior can be expected to reduce the detrimental effect of hindrance demands such as role-conflict and role-ambiguity on employee fatigue or long-term burnout.

Conclusion

This study among schoolteachers shows that transformational leadership behavior fluctuates from day to day. Consistent with JD-R and leadership theories, we found that the role of daily transformational leadership changes as a function of the specific daily job demands followers are facing. Transformational leadership helps to sustain employee work engagement on days characterized by high challenge job demands, and protects work engagement on days characterized by high hindrance job demands. These findings suggest that leadership behavior functions as important daily job resource for teachers, but most likely for employees in other occupations as well.

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