



Daily transactional and transformational leadership and daily employee engagement

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This diary study adds to the leadership literature by examining the daily influence of transformational leadership, contingent reward, and active management-by-exception (MBE active) on followers' daily work engagement. We compare the unique contribution of these leadership behaviours and focus on the work environment to examine *how* these leadership behaviours influence followers' daily work engagement. While travelling by sail ship, 61 naval cadets filled out a diary questionnaire for 34 days. Multilevel regression analyses revealed that, after controlling for followers' work engagement the previous day, cadets were more engaged on days that their leader showed more transformational leadership and provided contingent reward. MBE active was unrelated to followers' work engagement. As predicted, transformational leadership and contingent reward contributed to a more favourable work environment (more autonomy and support), while MBE active resulted in a less favourable work environment (less autonomy) for the cadets. This study highlights the importance of daily leadership for followers' daily work engagement.

Practitioner points

- Leaders' daily behaviour influences followers' daily work engagement.
- Leaders' daily behaviour shapes the daily work environment.

A key proposition of Bass' (1985) theory of transformational and transactional leadership is that transformational leadership explains unique variance in outcome variables after controlling for the influence of transactional leadership. Transactional leaders ensure that expectations are met, which is the foundation on which transformational leaders build to motivate their followers to perform beyond expectations. The few studies that examined the effect of transformational and transactional leadership simultaneously mainly used cross-sectional or longitudinal survey designs with long time intervals (Judge & Piccolo, 2004). However, these studies ignore the dynamic, short-term effects of leaders'

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behaviour, which may fluctuate from day-to-day and accordingly, differently impact follower outcomes depending on the day. Such a within-person approach to leadership has several advantages. For example, it allows us to examine leadership as a proximal predictor of follower outcomes. Furthermore, this approach reduces recall bias, focuses on leadership in its natural context, and brings us closer to the leadership process, because data are collected close to the event (i.e., at the end of each working day). Finally, adopting a microlevel perspective to leadership provides a more comprehensive understanding of leadership, because it tells us something about the extent to which traitlike leadership processes are similar to statelike leadership processes.

The present study contributes to the literature in a number of important ways. First, we examine the unique contribution of transformational and transactional leadership to followers' work engagement simultaneously. Previous research has shown that transformational leaders contribute to their followers' work engagement (Tims, Bakker, & Xanthopoulou, 2011; Zhu, Avolio, & Walumbwa, 2009), but have ignored the role of transactional leadership in followers' work engagement. We argue that some components of transactional leadership may be effective in stimulating followers' work engagement, although less effective compared with transformational leadership. Second, we examine *how* these leadership behaviours influence followers' work engagement by focusing particularly on the resourcefulness of the work environment. Studying the underlying process may provide answers as to why some leadership behaviours are more effective than others and advances our understanding of transformational and transactional leadership. Third, we follow a within-person approach to examine the abovementioned relationship on a daily basis, and fourth, we examine the abovementioned relationships in a unique context, that is, a sample of naval cadets who received leadership training during their 34-day stay on a sail ship.

Theoretical background

According to Bass (1985, 1999), transactional leaders motivate their followers to fulfil their leaders' expectations, while transformational leaders motivate their followers to perform beyond what is expected of them. In other words, although transactional leaders can be effective (e.g., promote follower job performance), transformational leaders are even more effective (e.g., promote follower job performance beyond transactional leaders). Bass argued that every leader uses both transactional and transformational leadership to some extent, but the most effective leaders use transformational leadership more frequently than transactional leadership.

Transactional leadership consists of multiple components that differ in their effectiveness. For example, some components lead to more committed, loyal, and satisfied followers than others (Bass & Riggio, 2006). First and most effective is contingent reward. Contingent reward means that followers receive incentives after they accomplish their tasks to stimulate followers' task motivation. Contingent reward is transactional when these incentives are material (e.g., bonus), but can also be transformational when the incentive is psychological in nature (e.g., praise). More ineffective compared with contingent reward is management-by-exception (MBE). MBE active is about the anticipation of mistakes and the enforcement of rules that may prevent mistakes from happening. In contrast, MBE passive refers to confronting followers with their mistakes and expressing disapproval about the mistakes that have been made. As MBE passive is most likely to occur when leaders have a large span of control (Bass & Riggio, 2006) and is often considered to be passive-avoidant leadership behaviour, we focused on MBE active.

Transformational leadership is characterized by the four I's: Idealized influence, inspirational motivation, individual consideration, and intellectual stimulation. Idealized influence means that followers identify with their leaders and respect and trust them. Inspirational motivation refers to creating and communicating an appealing vision of the future and to the leaders' own optimism about this future. Next, individual consideration means that leaders are mentors and acknowledge that every employee has his/her own needs and abilities. Finally, intellectual stimulation refers to challenging followers to rethink some of their ideas and to take a different perspective on the problems they face in their work.

In their meta-analysis, Judge and Piccolo (2004) examined the unique contribution of transformational and transactional leadership in predicting different outcomes. The results indicated that transformational leadership and contingent reward were important predictors of several outcome variables (i.e., satisfaction with the leader, motivation, leader job performance, and leader effectiveness). MBE active had a positive, but very small impact on the outcome variables.

State work engagement

State work engagement is a transient, positive, fulfilling, and work-related state of mind that fluctuates within individuals over a short period of time (Sonnentag, Dormann, & Demerouti, 2010), and is characterized by vigour, dedication, and absorption (Breevaart, Bakker, Demerouti, & Hetland, 2012; Schaufeli & Bakker, 2004). Vigour refers to high levels of energy and mental resilience, dedication means being enthusiastic about work and inspired by the work tasks, and absorption refers to being fully concentrated on work and feeling like time flies when working. This dynamic approach allows us to examine how leaders influence followers' work engagement in their natural work context. What happens on the days that leaders stimulate their followers' work engagement? Furthermore, a dynamic day-to-day approach may reflect leaders' behaviours more accurately, because followers only have to think back over several hours when they rate their leaders' behaviours instead of having to think back over several weeks or months (cf. Ohly, Sonnentag, Niessen, & Zapf, 2010).

Only a handful of studies examined the influence of leadership behaviour on followers' work engagement. For example, Zhu *et al.* (2009) found that transformational leadership predicted followers' work engagement, especially for individuals with positive characteristics (e.g., active learning). In an online experiment, Kovjanic, Schuh, and Jonas (2013) found that individuals who imagined their leader to be transformational by reading a vignette were more engaged because it fulfilled their need for relatedness and need for competence. We are only aware of one study that examined the relationship between leadership behaviour and employee work engagement on a daily basis (Tims *et al.*, 2011). Tims and her colleagues found that followers were more engaged on days that their leader showed more transformational leadership behaviour, because followers were more optimistic on these days.

The present study contributes to the literature beyond the aforementioned studies, because we focus on the unique contribution of transformational and transactional leadership to followers' work engagement on a daily basis. Tims *et al.* (2011) argue that transactional leaders lack the 'motivational power and inspirational appeal' (p. 122) that is needed to stimulate followers' work engagement. However, we argue that, in line with Bass' (1985, 1999) theory, followers will be more engaged on days when their leader shows more transactional leadership, but to a lesser extent than daily transformational

leadership. Furthermore, while Tims and colleagues focused on personal resources as the underlying mechanism to explain the relationship between leadership behaviour and follower work engagement, we focus on job resources.

Leadership process

A question that often remains unanswered in leadership research is ‘How do leaders influence follower outcomes?’. This is an important question, because it contributes to the understanding of the processes underlying the influence of leadership behaviour and hereby advances leadership theory. Yukl (2010) therefore called for more concentrated efforts to understand mediators that link leadership behaviours to follower outcomes. We argue that leaders influence their followers’ work engagement through their influence on the work environment. First, leaders may affect the way in which followers perceive their work environment. According to Smircich and Morgan (1982), leaders define and shape their followers’ work environment. Leaders are an important part of followers’ immediate social environment, on which followers rely when making judgements about their work environment (Salancik & Pfeffer, 1978). In line with this reasoning, research has shown that transformational leaders provide meaning for the work followers perform (Arnold, Turner, Barling, Kelloway, & McKee, 2007; Nielsen, Yarker, Brenner, Randall, & Borg, 2008). Second, leaders may encourage followers to actively increase their own resources, for example, by stimulating followers to think on their own and make their own decisions. Tims and Bakker (2010) argue that control over work is an important condition for employees to actively change their work environment to their benefit. Finally and most importantly, we argue that specific transformational and transactional leadership behaviours influence the actual availability of followers’ job resources. We will discuss these behaviours more in depth hereafter. Although several studies examined job resources to explain how leaders influence follower outcomes (Nielsen & Daniels, 2012; Nielsen, Randall, Yarker, & Brenner, 2008; Piccolo & Colquitt, 2006; Purvanova, Bono, & Dzieweczynski, 2006), these studies focused exclusively on transformational leadership and did not examine leadership on a daily basis.

Research has shown that job resources have motivating potential, leading to higher work engagement (for meta-analyses see Crawford, LePine, & Rich, 2010; Halbesleben, 2010). On a daily basis, this means that employees are more engaged on days when they have more job resources (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009; Xanthopoulou, Bakker, Heuven, Demerouti, & Schaufeli, 2008). To our knowledge, only one (survey) study examined whether leaders influence their followers’ work engagement because of their impact on the work environment. In their study among volunteer firefighters, Tuckey, Bakker, and Dollard (2012) showed that empowering leaders influence followers’ work engagement because they positively influence their followers’ cognitive job demands and job resources. However, it is still unclear whether job resources can explain how transformational and transactional leaders influence their followers’ (general or state) work engagement.

Daily leadership behaviour and state work engagement

Engaged employees perform their work because they enjoy it and are pulled towards it – they are intrinsically motivated (Schaufeli & Bakker, 2010). Transformational leaders contribute to employees’ intrinsic motivation, because they provide a meaningful rationale for their followers’ work (Avolio & Yammarino, 2002). That is, transformational

leaders communicate an appealing vision of the future and show confidence in their followers' ability to contribute to the realization of this vision (Seibert, Wang, & Courtright, 2011). Besides, transformational leaders stimulate followers to prefer the interests of the group over their self-interests (Avolio & Yammarino, 2002). On the sail ship, this means, for example, that leaders emphasize how conducting daily deck services and maintenance work contributes to the shared objectives and mission. Furthermore, this means that leaders stimulate the cadets to help and learn from other cadets during their 'off-duty' period, in order to achieve the common goals. It also means that leaders stimulate cadets to perform to the best of their abilities and delegate tasks that match cadets' seamanship skills. This makes it likely that followers feel energetic, are dedicated to, and immersed in their work.

Although contingent reward lacks the inspirational appeal of transformational leadership, it does not lack motivational power. Leaders who use contingent reward set clear goals and communicate what followers can expect when they reach these goals, which motivates followers (Bass & Avolio, 1995). This is in line with the results of Judge and Piccolo's (2004) meta-analysis, which showed that contingent reward contributes to followers' work motivation. Leaders who use contingent reward acknowledge that the cadets performed well in sailing the ship and developing their seamanship skills. This may provide meaning to the work, which is likely to increase the cadets' work engagement on that day. Furthermore, research has shown that constructive feedback is an important predictor of work engagement (Halbesleben, 2010). Leaders who use contingent reward do lack inspirational appeal, and we therefore expect that transformational leaders influence their followers' work engagement after controlling for the influence of contingent reward.

Bass and Avolio (1994) claim that MBE active is neither effective nor ineffective. It therefore seems unlikely that leaders who use MBE active are able to influence their followers' work engagement. Clearly, leaders who use MBE active lack both inspirational appeal and motivational power. However, Judge and Piccolo (2004) showed that MBE active was positively related to followers' work motivation, although not as strongly as transformational leadership and contingent reward. We therefore expect leaders who use contingent reward are able to influence their followers' work engagement after controlling for leaders' use of MBE active. These arguments lead to the following hypotheses:

Hypothesis 1a: Daily transformational leadership is positively related to followers' daily work engagement after controlling for daily transactional leadership (i.e., contingent reward and MBE active).

Hypothesis 1b: Daily contingent reward is positively related to followers' daily work engagement after controlling for daily transformational leadership and daily MBE active.

Daily leadership and autonomy

We argue that transformational leadership behaviour is positively related to followers' daily autonomy, because on days that leaders show more transformational leadership, followers are allowed to approach their problems from different perspectives, even if these perspectives are different from their leader's ideas. For example, when the cadets have difficulties planning an anchoring operation, they can decide to distance themselves

from the problem for a while, to ask another cadet for help or to spend some time trying different solutions. This makes it likely that followers will experience more autonomy on days that their leader uses more transformational leadership. Research indeed supports that transformational leadership is positively related to follower autonomy (Jung & Sosik, 2002; Piccolo & Colquitt, 2006). However, these studies did not employ a diary design and did not study whether autonomy can explain the relationship between transformational leadership and follower work engagement.

Although leaders who use transformational leadership may stimulate followers' autonomy more explicitly, we propose that leaders who use contingent reward also provide followers with more decision latitude to decide how and when to perform their tasks. Leaders who use contingent reward value the achievement of working goals. Autonomy contributes to the achievement of working goals, because it allows followers to perform their work in the most efficient way. Therefore, it seems likely that they provide the cadets with autonomy. For example, cadets can decide to switch the order of their deck duties when the weather suddenly turns and first perform those duties that can be done under the current weather conditions. Besides, leaders who use contingent reward communicate clear expectations. When these expectations are communicated at the start of the day, this may decrease the necessity to control what and how cadets perform their work during the day. Finally, Eisenberger, Rhoades, and Cameron (1999) argued and found that recipients of rewards that are contingent on performance are able to control their environment, because they can decide whether or not to accept the reward. This ability to control rewards provides recipients with autonomy.

Finally, we argue that leaders who use MBE active influence followers' autonomy in a negative way. It is likely that followers have less autonomy to perform their work when their behaviour is constantly being monitored. For example, when the cadets try new ways to perform their work, there is a possibility that these are less effective and this increases the likelihood that mistakes are being made. Leaders who use MBE active try to actively prevent mistakes from happening, and thus, it is likely that they do not provide followers' with any latitude to decide when and how to perform their work. Based on these arguments and the aforementioned literature showing a positive relationship between autonomy and work engagement (Halbesleben, 2010; Xanthopoulou *et al.*, 2009), we hypothesize:

- Hypothesis 2a:* Daily transformational leadership is positively related to followers' daily autonomy after controlling for daily transactional leadership (i.e., contingent reward and MBE active).
- Hypothesis 2b:* Daily contingent reward is positively related to followers' daily autonomy after controlling for daily transformational leadership and daily MBE active.
- Hypothesis 2c:* Daily autonomy mediates the relationship between daily (1) transformational leadership, (2) contingent reward, and (3) MBE active on the one hand, and followers' daily work engagement on the other hand.

Daily leadership and social support

We further argue that followers will also receive more social support from their leader on days their leaders use more transformational leadership. Transformational leaders pay

attention to their followers and listen to them carefully. Hence, on days that leaders use more transformational leadership, leaders will pay more attention to the needs of each follower. For example, leaders will take some time to privately talk to the cadets who are home sick or mediate in an argument between two cadets. This makes it likely that transformational leaders contribute to followers' daily social support. Research has shown that support provided by the transformational leader has positive implications for followers, because it protects followers from experiencing stress and burnout (for a review see Skakon, Nielsen, Borg, & Guzman, 2010).

Furthermore, we argue that contingent reward positively influences followers' work engagement, because followers receive more social support when their leader uses contingent reward. Leaders who use contingent reward pay attention to their cadets and praise them when they are, for example, able to take the sails up and down in ten minutes. That is, followers' performance is recognized and appreciated by leaders, which are well-known types of social support (Carlson & Perrewé, 1999; Etzion, 1984).

With regard to the supervisory support followers receive, again, we claim that MBE active is less effective compared with transformational leadership and contingent reward. We argued that recognition and appreciation are important indicators of social support and that leaders who use MBE active do not recognize or appreciate followers' performance. They rather show what they do not appreciate, namely mistakes being made. Furthermore, social support implies that there is at least some form of exchange and mutuality (Baumeister & Leary, 1995). Whereas the contingent reward component of transactional leadership is based on mutuality (i.e., praise in exchange for high performance), followers of leaders who use MBE active are expected to perform well and not make any mistakes, but followers are not rewarded in any way when they perform well. Together with the aforementioned literature showing a positive relationship between social support and work engagement (Halbesleben, 2010; Xanthopoulou *et al.*, 2009), these arguments lead to our final hypotheses (see Figure 1 for an overview of all hypotheses):

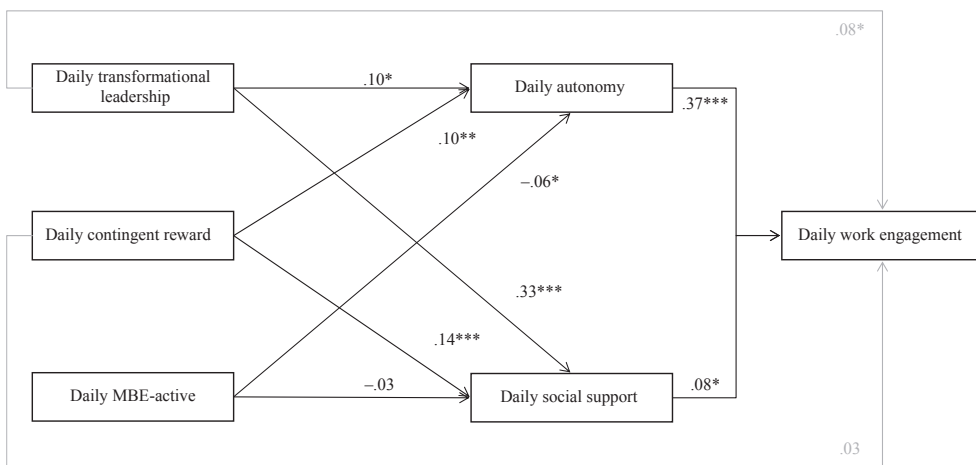


Figure 1. Final model of daily leadership and employee work engagement, standardized solution including direct and indirect pathways.

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

- Hypothesis 3a:* Daily transformational leadership is positively related to followers' daily social support after controlling for daily transactional leadership (i.e., contingent reward and MBE active).
- Hypothesis 3b:* Daily contingent reward is positively related to followers' daily social support after controlling for daily transformational leadership and daily MBE active.
- Hypothesis 3c:* Daily social support mediates the relationship between daily (1) transformational leadership, (2) contingent reward, and (3) MBE active on the one hand, and followers' daily work engagement on the other hand.

Methods

Participants and procedure

Sixty-one Norwegian naval cadets from a Military University College participated in our study. As part of their leadership training, they travelled from northern Europe to North America by sail ship. The cadets received a booklet with diary questionnaires for the 40 days of their stay on the sail ship. During 6 days of their travel, the cadets went ashore and enjoyed their free days. We checked for missing data during this period and found out that almost all cadets did not fill out the diary during these days. As these missing values are not at random, we removed these 6 days from our analyses. We requested the cadets to fill out the questionnaire at 5 PM on each day. The cadets were part of one of eight teams, and most teams had multiple leaders on most of the days, so we asked them to rate the daily leadership behaviour of their nearest leader. The sample consisted of 46 male participants (75.4%) and 7 female participants (11.5%). Eight participants did not fill in their gender (13.1%). The mean age of the participants was 23.8 years ($SD = 3.15$).

Measures

We used daily diaries to measure our study variables. All day-level questionnaires were adapted versions of existing scales. We adapted the time frame of the scales and the number of questions so the questions could be answered on a daily basis (cf. Ohly *et al.*, 2010). Moreover, the questionnaires were reduced in length when possible, because we asked the cadets to fill out the diary on all 34 days of their stay on the boat. The appendix provides an overview of all questions that were included in the study.

Day-level transformational leadership behaviour

Day-level transformational leadership behaviour was measured with five items from the multifactor leadership questionnaire-form 5X (MLQ 5X; Bass & Avolio, 1995). Participants could respond to the items on a 5-point scale, ranging from 1 (*totally disagree*) to 5 (*totally agree*). The average internal consistency of the scale across the days was .79.

Day-level transactional leadership behaviour

Day-level transactional leadership behaviour was measured with six items from the MLQ 5X; (Bass & Avolio, 1995); contingent reward and MBE active were assessed with three

items each. Participants could respond to the items on a 5-point scale, ranging from 1 (*totally disagree*) to 5 (*totally agree*). The average internal consistency of the contingent reward scale was .61. On average, the internal consistency of the MBE active scale was .74.

Day-level job resources

Daily autonomy and daily social support were measured with three items each. Both scales were based on scales from Bakker, Demerouti, and Verbeke (2004). The items could be answered on a 5-point scale, ranging from 1 (*not at all*) to 5 (*a very large degree*). The average internal consistency of autonomy was .78, and the average internal consistency of social support was .76.

Day-level work engagement

Day-level work engagement was measured with the state version (Breevaart *et al.*, 2012) of the 9-item Utrecht Work Engagement Scale (Schaufeli, Bakker, & Salanova, 2006). The statements could be answered on a 5-point scale (1 = *totally disagree*, 5 = *totally agree*). Work engagement showed an average internal consistency of .90.

Strategy of analysis

We used Mplus (Muthén & Muthén, 1998–2010) to take into account the nested structure of the data (i.e., days nested within persons and persons nested within teams). We have a 3-level model with days at the first level (Level 1; $N = 2,440$), persons at the second level (Level 2; $N = 61$), and teams at the third level (Level 3; $N = 8$). According to Maas and Hox (2005), a minimum of 30 cases at the highest, team level of analysis is needed for adequate power in multilevel modelling. Following this rule of thumb, we do not have a sufficient amount of cases at the highest, third level ($N = 8$) required for robust estimations. Therefore, we used the 'TYPE = COMPLEX' procedure in Mplus to calculate standard errors and chi-square values while taking into account the non-independence of observations due to clustering at the person level. We centred all our variables around the group (i.e., person) mean, because we are interested in how daily fluctuations from the baseline in the predictor variables are related to daily fluctuations from the baseline in the outcome variable (Ohly *et al.*, 2010). Most variance of the predictor variables (67–80%) was explained by the day-level.

To test for the significance of the mediation effects, we used the parametric bootstrap method recommended by Preacher, Zyphur, and Zhang (2010) to create confidence intervals. This method does not make any assumptions about the distribution of the indirect effect, while the delta method confidence intervals in Mplus do not take into account the asymmetric nature of the indirect effect. We used the online interactive tool developed by Selig and Preacher (2008) that generates an R code to obtain confidence intervals for the indirect effect. As this tool does not allow specification of more than two paths, we adjusted the generated R code to test our sequential mediation hypothesis by adding an extra path from the second mediator to the outcome variable.

Results

Descriptive statistics

Table 1 shows the intercorrelations, means, standard deviations, and internal consistencies of the study variables averaged over 34 days.

Hypotheses testing

The first hypothesis suggests that daily transformational leadership is positively related to followers' daily work engagement after controlling for daily contingent reward and MBE active (1a) and that daily contingent reward is positively related to followers' daily work engagement after controlling for daily transformational leadership and daily MBE active (1b). We tested a model including paths from all leadership styles to followers' work engagement to examine the unique contribution of each leadership style. The path from daily transformational leadership to daily work engagement was .15 ($p < .001$, 95% CI: 0.07, 0.22), the path from daily contingent reward to daily work engagement was .07 ($p < .05$, 95% CI: 0.01, 0.13), and the path from daily MBE active to daily work engagement was .03 (*n.s.*, 95% CI -0.01 , 0.08) after controlling for followers' work engagement the previous day (.28, $p < .001$, 95% CI: 0.19, 0.38). Furthermore, we tested a model including only the path from MBE active to followers' work engagement. This model explained 0.3% of the variance in followers' daily work engagement. Next, we added the path from contingent reward to followers' work engagement, which increased the explained variance in followers' daily work engagement with 2.1%. Finally, the path from transformational leadership to followers' work engagement was included and explained an additional 2.2% in followers' daily work engagement. Together with work engagement the previous day, leadership explained 12.1% of the variance in followers' daily work engagement. This means that Hypotheses 1a and 1b were both supported.

Job resources as mediators

Hypothesis 2a states that daily transformational leadership is positively related to followers' daily autonomy after controlling for daily transactional leadership (i.e., contingent reward and MBE active), and Hypothesis 2b states that daily contingent reward is positively related to followers' daily autonomy after controlling for followers' daily transformational leadership and daily MBE active. In a similar vein, Hypothesis 3a states that daily transformational leadership is positively related to followers' daily social support after controlling for daily transactional leadership (i.e., contingent reward and MBE active), and Hypothesis 3b states that daily contingent reward is positively related to followers' daily social support after controlling for followers' daily transformational leadership and daily MBE active. In line with our hypotheses, transformational leadership was positively related to both autonomy (.10, $p < .05$, 95% CI: 0.03, 0.18) and social support (.33, $p < .001$, 95% CI: 0.26, 0.39).

Table 1. Means, standard deviations, intercorrelations, and internal consistencies (Cronbach's alphas on the diagonal) between the study variables, $N = 61$ persons, $N = 2,440$ days

	M	SD	1	2	3	4	5	6
1. Transformational leadership	3.42	0.26	(.79)					
2. Contingent reward	3.43	0.28	.51**					
3. MBE active	2.49	0.44	.05	.14**	(.74)			
4. Autonomy	2.78	0.40	.15**	.14**	-.04	(.78)		
5. Social support	3.56	0.29	.39**	.30**	.003	.16**	(.76)	
6. Work engagement	3.05	0.38	.19**	.15**	.05*	.43**	.18**	(.90)

* $p < .01$; ** $p < .001$.

Contingent reward was also positively related to autonomy (.10, $p < .01$, 95% CI: 0.04, 0.16) and social support (.14, $p < .001$, 95% CI: 0.07, 0.20). MBE active was negatively related to autonomy (−.06, $p < .05$, 95% CI −0.11, 0.00), but unrelated to social support (−.03, *n.s.*). Furthermore, we tested a model including the paths from MBE active to autonomy and social support. This model explained no variance in social support and only 0.2% of the variance in daily autonomy. Next, we added the paths from contingent reward to autonomy and social support. This model explained 6.6% of the variance in daily social support and an additional 1.6% of the variance in daily autonomy. Finally, we added the paths from transformational leadership to autonomy and social support. Transformational leadership was able to explain an extra 1.1% in daily autonomy and 9.7% in daily social support.

We continued testing our mediation hypotheses. Hypothesis 2c states that the relationship between daily (1) transformational leadership, (2) contingent reward, and (3) MBE active on the one hand and daily work engagement on the other hand is mediated by daily autonomy. Hypothesis 3c states that the relationship between daily (1) transformational leadership, (2) contingent reward, and (3) MBE active on the one hand and daily work engagement on the other hand is mediated by daily social support. We tested a model including the double mediation by autonomy and social support, controlling for previous day work engagement. Social support (.08, $p < .05$, 95% CI: 0.02, 0.14) and autonomy (.37, $p < .001$, 95% CI: 0.31, 0.42) were both positively related to work engagement.

Table 2 shows the results of the mediation effects. Autonomy mediated the relationship between transformational leadership, contingent reward, and MBE active on the one hand and work engagement on the other hand. Social support mediated the relationship between transformational leadership and work engagement. Contrary to our expectations, the relationship between contingent reward and MBE active on the one hand and work engagement on the other hand was not mediated by social support. Next, we compared the fit of our hypothesized model to the fit of the partially mediated model including direct effects from transformational leadership and contingent reward to followers' work engagement. Results showed a

Table 2. Indirect pathways from leadership to work engagement

	Unstandardized path coefficient	Standard error	95% Confidence interval		<i>p</i>
			Lower	Upper	
Indirect effect $x \rightarrow m \rightarrow y$					
Transformational leadership → Autonomy → Work engagement	.04	0.02	0.01	0.08	.02
Transformational leadership → Social support → Work engagement	.03	0.01	0.01	0.05	.01
Contingent reward → Autonomy → Work engagement	.04	0.02	0.01	0.06	.01
Contingent reward → Social support → Work engagement	.01	0.01	0.00	0.02	.06
Management-by-exception → Autonomy → Work engagement	−.02	0.01	−0.04	−0.00	.04
Management-by-exception → Social support → Work engagement	−.003	0.003	−0.01	0.003	.20

significant decrease in chi-square ($\Delta\chi^2 = 8.72$ (2), $p < .05$), indicating that the alternative model including the direct effects fits better to the data. Although the relationship between contingent reward and work engagement is no longer significant (.03, *n.s.*) after including the mediators, there was a small, but significant direct effect from transformational leadership to work engagement (.08, $p < .05$, 95% CI: 0.02, 0.15). The final model (Figure 1) fitted well to the data (CFI = .99; RMSEA = .04; SRMR = .01) and explained 3.1% of the variance in daily autonomy, 16.7% of the variance in daily social support, and 25.7% of the variance in daily work engagement.

Discussion

The aim of our study was threefold. First, we wanted to examine the unique contribution of transformational and transactional leadership to followers' work engagement. Second, we focused on two job resources (i.e., autonomy and social support) to explain *how* leaders influence their followers' work engagement. Third, we examined these relationships on a day-to-day basis.

Contributing to the uniqueness of this study is the specific context in which the proposed relationships were tested, allowing us to examine our study model on a daily basis. During their stay on the boat, the cadets were trained to sail the boat, practice seamanship skills, and use transformational and transactional leadership. This meant that the cadets switched leadership positions, which allowed us to examine the influence of deviations in leadership compared to the baseline (average transformational and transactional leadership over the 34 days) in a natural, but highly controlled work context. In general, the results were in line with our expectations. We will now discuss our findings in more detail.

Daily leadership and work engagement

In line with Bass' (1985, 1999) theory, we found that after controlling for transactional leadership, transformational leadership contributes to followers' work engagement on a daily basis. We showed that, despite their lack of inspirational appeal, leaders who use contingent reward are also able to influence their followers' daily work engagement in a positive way after controlling for daily MBE active. MBE active was unrelated to followers' work engagement, which is in line with Bass' (1999) contention that MBE active is neither effective nor ineffective. Although all three types of leadership explained a small amount of variance in followers' daily work engagement, contingent reward explained additional variance in followers work engagement after controlling for MBE active. In a similar vein, transformational leadership explained additional variance in followers' work engagement after controlling for transactional leadership (i.e., contingent reward, MBE active).

Job resources as mediators

This study focused on job resources to examine how transformational and transactional leaders influence their followers' daily work engagement. We showed that daily autonomy is a promising mechanism through which leaders influence their followers' daily work engagement. Transformational leadership and contingent reward positively

influenced followers' daily autonomy, which consequently influenced followers' work engagement. MBE active decreased followers' daily autonomy and, consequently, reduced followers' work engagement. Again, results were in line with Bass' contention that transformational leadership adds to the influence of transactional leadership. Daily contingent reward explains additional variance in followers' daily autonomy compared with daily MBE active. Furthermore, daily transformational leadership explains additional variance in followers' daily autonomy after controlling for daily transactional leadership (contingent reward and MBE active).

In line with results for autonomy, transformational leadership and contingent reward were both positively related to social support on a day-to-day basis, the former explaining additional variance over the latter, and MBE active was unrelated to social support. Surprisingly, the mediation of social support in the relationship between contingent reward and employee work engagement was only marginally significant ($p = .06$). This may be due to the combination of the relatively small direct relationships between contingent reward and social support, and between social support and work engagement.

Theoretical implications

This study contributes to the literature in a number of ways. First and most importantly, it is one of the first to examine the influence of daily fluctuations in leadership behaviour on followers' work engagement. Diary studies are important because they bring us closer to the process through which leadership is related to followers' work engagement and reduce the risk of recall bias (Ohly *et al.*, 2010), because followers rate their leader's behaviour much closer to when it happens. With diary studies, followers only have to think back over a few hours instead of weeks or months. Therefore, transformational and transactional leadership measured on a daily basis may be a more accurate reflection of the leadership behaviours shown by the leader compared with leadership behaviour measured at one point in time. Moreover, ratings of general leadership behaviour may be more a reflection of someone's attitude instead of a true reflection of leadership behaviour (Sonnentag *et al.*, 2010). The present study shows the importance of monitoring leadership behaviour more closely when studying its effects, because most of the variance in transformational and transactional leadership was explained at the day-level. This shows that the degree to which leaders vary in their leadership from day-to-day may differently influence employees depending on the day. For example, on some days, leaders may predominantly use transformational leadership, while on other days they combine transformational leadership with contingent reward or MBE active.

Furthermore, this is one of the few studies that examined the influence of transformational leadership and different components of transactional leadership simultaneously and the first to examine the relationship between different forms of transactional leadership and work engagement. Tims *et al.* (2011) argued that transactional leaders are unable to influence followers' work engagement, but we showed that some transactional leadership behaviours (i.e., contingent reward) are able to stimulate followers' work engagement. In line with the augmentation effect, transformational leadership adds to the influence of transactional leadership. It has often been questioned whether contingent reward is different from transactional leadership behaviour (Avolio, Bass, & Jung, 1999). Although this study does not provide an answer to this question, it does suggest that it is worthwhile to study its effect on follower outcomes separately from transformational leadership and other transactional leadership behaviours (e.g., MBE active).

Finally, the present study responds to the call for more research on the underlying mechanisms of the relationship between leadership and work outcomes (Yukl, 2010) and, more specifically, for more research on the mediating role of mechanisms rooted in the job (Piccolo & Colquitt, 2006). We showed that daily autonomy and daily social support mediated the relationship between daily leadership and followers' daily work engagement. Furthermore, we contribute to the leadership literature because we focus on the effect of transformational and transactional leadership on a positive affective, motivational employee outcome – work engagement – while most other studies focus on stress and burnout or organizational outcomes such as performance and organizational citizenship behaviour (for a review see Skakon *et al.*, 2010).

Practical implications

The present study also has some important practical implications. First, we show the importance of day-to-day fluctuations in leadership behaviour. For example, on days that leaders actively monitor their followers' behaviour for mistakes, they indirectly reduce followers' work engagement on that day. Besides, when leaders have an 'off-day' and show less transformational leadership or contingent reward, they are unable to positively influence followers' work environment and work engagement on that day. According to Bass and Riggio (2006), every leader uses both transformational and transactional leadership. Our results confirm this and show that, in terms of work engagement, leaders are most effective on days that they show transformational leadership most frequently, followed by contingent reward. Although daily MBE active does not directly undermine followers' work engagement, it does so indirectly because it reduces followers' daily autonomy. This implies that leaders should only use MBE active on days that it is extremely important for followers to do exactly as they are told, for example, in threatening or urgent situations.

Because leaders may not always be aware of how their behaviour affects followers, it may prove useful to provide leaders with feedback about their behaviour. For example, the leaders on the sail ship were provided with feedback about their transformational and transactional leadership behaviours based on their followers' ratings. Subsequently, this feedback was used to set up development plans, which were then implemented by the leaders. Leaders could also use this direct and positive effect of transformational leadership to their benefit. For example, it is especially important that leaders use transformational leadership when followers' engagement is of high importance (e.g., when there is an important deadline). Research has shown that leaders can be trained in their transformational leadership (Barling, Weber, & Kelloway, 1996; Dvir, Eden, Avolio, & Shamir, 2002). Barling *et al.* (1996) designed a transformational leadership training consisting of five sessions. Managers in the training group were rated by their followers as more intellectually stimulating, charismatic, and individual considerate 5 months after the training sessions compared with 2 weeks before the training and compared with the no-training control group. However, in the light of our findings and Bass' theory, it seems important to not only focus on transformational leadership but also train leaders how to use transactional leadership behaviours effectively.

Limitations of the study and implications for future research

Although the current study has clear strengths due to its research design, it is not without limitations. The use of self-reports may potentially increase the risk of common method

variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). According to Conway and Lance (2010), self-reports may be appropriate and authors should always provide arguments for their decision to use self-reports. In our study, we wanted to examine how perceived leadership behaviour is related to followers' job resources. According to the JD-R model, each job and even each individual have their own constellation of job demands and job resources. Therefore, followers are the best source of information regarding their own job resources. Furthermore, we examined how followers' job resources are related to employees' work engagement, which is a private experience. Besides, common method bias is rarely strong enough to bias results (Doty & Glick, 1998; Spector, 2006), which is likely to be true for the present study, because the relationships between the construct can be best qualified as 'moderate'. Finally, we followed Podsakoff *et al.*'s (2003) remedy to reduce the impact of common method bias by ensuring participants' anonymity.

Another limitation is that for some scales, on some days, the internal consistency was quite low. This is an important issue, also for diary studies in general, that warrants further attention. In diary studies, the time frame of existing scales is often adapted. For example, state work engagement is measured by reframing the items used that measure general levels of work engagement in such a way that they refer to the day. However, it is possible that some items refer to experiences that cannot be answered every day, resulting in lower interitem correlations and, consequently, lower internal consistency for the scale on that day (Sonnentag *et al.*, 2010). Although the internal consistencies for some scales were low on some days, on average, the internal consistencies in our study meet Nunnally's (1967) internal consistency of .60 for early stages of research. Furthermore, unreliable measures attenuate relationships between predictors and outcomes in such a way that the relationships are underestimated. This may imply that the relationships found in the present study can be considered as conservative. However, future research on the psychometric properties of daily diary measures is necessary.

Another limitation of our study may be that we did not include the MBE-passive component of transactional leadership. One of the main aims of our study was to show that it is important to differentiate between the different components of transactional leadership, because some transactional leadership behaviours may be positively related to follower outcomes, while others are not. We did not include MBE passive, because Bass and Riggio (2006) argue that leaders will use MBE passive when they have a large number of subordinates, because that makes it difficult to actively monitor mistakes. Considering the setting of our study, we expected that leaders would prefer the use of MBE active to the use of MBE passive. Furthermore, Bass and Riggio (2006) state that MBE active is required and effective in certain situations, such as when safety is important. Following this reasoning, it is more likely that leaders on a sailboat who are trained to lead use MBE active instead of MBE passive. As the only difference between MBE active and MBE passive is the moment of intervening, we expect results to be similar for MBE active and MBE passive. Future research could test this assumption by including transformational leadership and all categories of transactional leadership behaviour (i.e., contingent reward, MBE active, and MBE passive).

The specific sample and context in which our proposed relationships were examined may restrict the generalizability of our findings. Although the findings were in line with theoretically derived hypotheses, the results need to be replicated in other samples of employees working under different conditions. Note, however, that because of its specificity (i.e., being trained on a sail ship for a longer period of time), the context of this study provided a very special opportunity to examine the proposed relationships in a

highly controlled (i.e., few influences from the outside), but at the same time dynamic (e.g., switching positions, learning new skills) work context.

In this study, we only focused on the process of the leadership behaviour – follower work engagement relationship. However, it is also important to study possible contingencies of leadership behaviour. Under which circumstances are certain leadership behaviours more or less effective? For example, it is conceivable that leaders' influence on followers' work environment is reduced when followers craft their own resources (Tims, Bakker, & Derks, 2012; Wrzesniewski & Dutton, 2001). Another example is that MBE active may be more effective compared with contingent reward and transformational leadership in high-risk professions such as those of aircraft pilots or nuclear plant workers.

Conclusion

The present study contributes to the literature in several ways. To our knowledge, this is the first study to examine the impact of transformational leadership and different components of transactional leadership on followers' work engagement simultaneously and on a daily basis. We showed that both transformational leadership and contingent reward are positively related to followers' work engagement, the former explaining additional variance in followers' work engagement over the latter. Moreover, we examined how leaders' daily leadership behaviour is related to followers' daily work engagement. It appeared that transformational leaders and leaders who use contingent reward contribute to a favourable work environment (i.e., higher autonomy and social support), while MBE active contributes to a less favourable work environment (i.e., lower autonomy). To conclude, the present study shows that different types of daily leadership behaviours have an important direct and indirect influence on followers' work engagement.

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Appendix: Items of all study variables

Transformational leadership

1. Today, my leader talked enthusiastically about what needed to be accomplished.
2. Today, my leader got me to look at problems from different angles.
3. Today, my leader helped me to develop my strengths.
4. Today, my leader emphasized the importance of having a collective sense of mission.
5. Today, my leader expressed confidence that goals would be achieved.

Contingent reward

1. Today, my leader discussed in specific terms who was responsible for achieving performance targets.
2. Today, my leader made clear what to expect when performance standards were met.
3. Today, my leader expressed satisfaction when I met expectations.

MBE active

1. Today, my leader focused attention on irregularities, mistakes, exceptions and deviations from standards.
2. Today, my leader concentrated his/her full attention on dealing with mistakes, complaints, and failures.
3. Today, my leader kept track of all mistakes.

Autonomy

1. Today, did you have flexibility in how to perform your work?
2. Today, did you have control over how to carry out your work?
3. Today, I could participate in decisions regarding my own work.

Social support

1. Today, when necessary, I could ask my supervisor for help.
2. Today, I could count on my supervisor when things were getting difficult.
3. Today, my work was recognized by my supervisor.

Work engagement

1. Today at work, I felt bursting with energy.
2. Today at work, I felt strong and vigorous.
3. Today, I was enthusiastic about my work.
4. Today, my job inspired me.
5. When I got up this morning, I felt like going to work.
6. Today, I felt happy when I was working intensively.
7. Today, I was proud of the work that I do.
8. Today, I was immersed in my work.
9. Today, I got carried away when I was working.