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Motivating Job Characteristics and Happiness at Work: A Multilevel Perspective

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Employees may react differently to the perceived availability of motivating job characteristics during work activities, depending on the degree to which such motivating job characteristics are also present at the job level and individual differences. This study expands Job Characteristics Theory (JCT) by using a multilevel approach to predict how variations in motivating job characteristics relate to employee happiness during daily work activities. Based on adaptation level theory and the affective-reactivity hypothesis, we predicted that the positive relationship between perceived motivating job characteristics and happiness during work activities is moderated by motivating job characteristics at the job level and individual differences in trait positive affect. A sample of 68 employees filled out a general survey and reported on their job characteristics and happiness during 741 work activities using a day reconstruction method across five working days. In line with adaptation level theory, multilevel results confirmed that the perceived availability of motivating job characteristics during work activities relates positively to happiness during that same work activity, but only when similar motivating job characteristics at the job level are low. In addition, trait positive affect further moderated this cross-level interaction. In line with the affective-reactivity hypothesis, the 3-way interaction effect showed that for employees who are high in positive affect, the perceived availability of motivating job characteristics related positively to happiness during specific work activities, regardless of whether similar motivating job characteristics at the job level were high or low. We discuss how these findings add important temporal dynamics to JCT.

Keywords: Adaptation Level Theory, day reconstruction method, employee happiness, Job Characteristics Theory, positive affect

Based on Hackman and Oldham's (1980) renowned Job Characteristics Theory (JCT), research has repeatedly shown that five core motivating job characteristics (i.e., skill variety, task identity, task significance, autonomy, and feedback) are positively related to work outcomes such as job satisfaction, internal work motivation, and job performance (Fried & Ferris, 1987; Humphrey, Nahrgang, & Morgeson, 2007). However, at least two aspects of JCT remain understudied, as also recognized by Oldham and Hackman (2010). First, jobs—and consequently the perceived availability of motivating job characteristics—have become way more dynamic over time. Employees experience fluctuations in their autonomy during the execution of different work activities throughout the workday. Consequently, scholars have emphasized that research should simultaneously consider employee reactions to temporal fluctuations in motivating job characteristics, as well as motivating job characteristics of the job in general, as meaningful predictors of critical psychological states and relevant individual and organizational outcomes (e.g., Bakker, 2015; Fisher, Minbashian, Beckmann, & Wood, 2013; Grant, Fried, & Huillerat, 2011). However, to date, we are not aware of empirical research that examined why and how combinations of motivating job characteristics at the activity level and job level may interact to predict fluctuations in such outcomes.

Second, Oldham and Hackman (2010) as well as other scholars (Barrick, Mount, & Li, 2013; Fisher et al., 2013) stated that personal differences that may moderate the impact of motivating job characteristics on psychological states and important work outcomes are understudied. Do all employees react similarly to the perceived availability of motivating job characteristics, or are there important individual differences that may moderate effects of motivating job characteristics on employee outcomes? Third, research on JCT has considered critical psychological states of experienced meaningfulness, experienced responsibility for work outcomes, and knowledge of results of work activities as important drivers of attitudinal (i.e., job satisfaction, organizational commitment) and behavioral (i.e., performance, absenteeism) work outcomes. However, happiness at work has not been considered. This is unfortunate, as highly active and pleasurable emotional states (e.g., happiness, vigor, feeling engaged; Russell, 1980, 2003) predict important work outcomes such as task performance (Chris-

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tian, Garza, & Slaughter, 2011; Fisher & Noble, 2004), organizational citizenship behavior (Demerouti, Bakker, & Gevers, 2015; Lee & Allen, 2002), and career success (Boehm & Lyubomirsky, 2008).

The aim of this article is to address each of these issues. First, we extend JCT by proposing that employee happiness during work activities may fluctuate because of (a) fluctuations in the perceived availability of motivating job characteristics during specific work activities, and (b) the degree to which such motivating job characteristics are also present at the job level. Based on Adaptation-Level Theory (Bowling, Beehr, Wagner, & Libkuman, 2005; Helson, 1964; Sheldon & Lyubomirsky, 2012), we will argue that the episodic relationship between motivating job characteristics and happiness will be stronger when similar motivating job characteristics at the job level are low. Second, we extend JCT by arguing that individual differences in trait positive affect will influence the degree to which employees react positively to the perceived availability of motivating job characteristics during work activities. In line with novel insights from research on the affective-reactivity hypothesis (Smillie, Cooper, Wilt, & Revelle, 2012), we propose that individuals who are high (vs. low) in positive affect react positively to the perceived availability of motivating job characteristics during their daily work activities, even under the condition that motivating job characteristics at the job level are already high. The present study uses an ecologically valid Day Reconstruction Methodology (DRM; Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004) to obtain episodic reports on the perceived availability of motivational job characteristics and happiness during 741 work activities.

Theoretical Background

More than three decades ago, Hackman and Oldham (1980) developed their influential Job Characteristics Theory (JCT), in which they proposed that five core job characteristics enhance the motivational potential of jobs and positively influence important work outcomes such as job satisfaction and performance. These five job characteristics are skill variety (i.e., the degree to which a job requires various activities, enabling the worker to develop a variety of skills and talents), task identity (i.e., the degree to which the job requires doing a whole and identifiable piece of work from beginning to end), task significance (i.e., the degree to which the job impacts other people's lives), autonomy (i.e., the level of freedom, independence, and discretion in carrying out the job), and job-based feedback (i.e., the degree to which work activities provide the individual with direct and clear information about the effectiveness of the performance). Meta-analyses since have confirmed that these five job characteristics at the job level are indeed positively associated with important outcomes such as employee well-being, work motivation, and performance (Fried & Ferris, 1987; Humphrey et al., 2007).

As jobs have become much more dynamic, Daniels (2006) was among the first to propose that generalized perceptions of job characteristics (of how a job usually is) should be distinguished from so-called "enacted" job characteristics that comprise more dynamic job characteristics that may vary across work situations. A dynamic approach to job characteristics echoes other episodic approaches to work and affect (e.g., Oerlemans & Bakker, 2013; Weiss & Cropanzano, 1996), where the interpretations of specific events as they happen influence affective experiences. For example, during some work tasks, employees may find little to no opportunities to enact their autonomy (e.g., when performing required administrative duties in the morning), whereas other work tasks will provide more opportunities to do so (e.g., work in the afternoon on a new project). Therefore, motivating job characteristics as defined by Hackman and Oldham (1980) are likely to fluctuate from one activity to the next, and may predict momentary changes in employee well-being from one work activity to the next.

Literature indeed shows that positive affective states vary substantially within persons as a function of job characteristics that fluctuate on a daily basis (Ilies, Scott, & Judge, 2006; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009). However, it is not yet well understood how between-person (at the job level) and within-person (at the activity level) job characteristics may interact to predict employee well-being (Bakker, 2015; Barrick et al., 2013; Daniels, 2006; Ilies, Aw, & Pluut, 2015). In this study, we propose that Adaptation Level Theory may be useful to better understand how motivating job characteristics at the job level influence episodic relationships between perceptions of motivating job characteristics and happiness during work activities. Hence, in this study, we examined the perceived availability of the five motivating job characteristics—as proposed in JCT—at a job level, as well as during each of the daily work activities of employees.

Adaptation-Level Theory

In Adaptation-Level Theory (ALT; Bowling et al., 2005; Helson, 1964; Sheldon & Lyubomirsky, 2012), it is stated that individuals habituate to new situations, and that psychological systems react to deviations from one's current adaptation level. Automatic habituation processes are adaptive, in that they allow constant stimuli to fade into the background, so that enough psychological resources remain available for individuals to deal with novel stimuli, which most likely require immediate attention (Fredrick & Loewenstein, 1999). This assumption suggests that emotional reactions such as happiness during specific work activities depend on the degree to which motivating job characteristics that are perceived during specific work activities are also present in the general work environment, instead of the overall favorability of the circumstances (Diener, Lucas, & Scollon, 2006; Kahneman, 1999; Sheldon & Lyubomirsky, 2012). According to ALT, employee happiness during a specific work-related activity would depend on (a) the degree to which employees perceive motivating job characteristics during that work activity, and (b) the degree to which similar motivating job characteristics are already present at the job level (i.e., across all work experiences).

As a specific example, let's focus on skill variety and consider the combined effect of job level and activity level variations in skill variety on employee happiness during a specific work activity. A carpenter may work in an organization in which his job mostly consists of performing relatively easy and repetitive tasks (e.g., installing wooden floors or baseboards). However, another carpenter may have a job where he or she is continuously challenged to develop complex and unique products using a variety of skills (e.g., continuously producing unique types of furniture). Now consider an activity that enables the carpenter to use various skills, such as when building a complex product (e.g., a staircase,

dormer, unique furniture). ALT predicts that the carpenter will only experience a significant and positive change in happiness when similar motivating job characteristics at the job level are poor. When skill variety at the job level is poor, one specific activity that *does* require high skill variety at the activity level will result in increased happiness during that specific activity, because the activity is enriching the work episode. However, when the job already involves lots of activities that require high skill variety, one specific activity that (also) requires high skill variety would not be noticed as dissimilar from other activities, and thus will not result in increased happiness during that specific work activity. Stated more formally, we hypothesize that:

> *Hypothesis 1:* The positive relationship between perceived motivating job characteristics and happiness during work activities is stronger for employees who generally have low (vs. high) levels of similar motivating job characteristics in their job in general.

Trait Positive Affect as a Moderator

A second important issue is that individual differences in trait positive affect can influence the way in which individuals react positively to the perceived availability of motivating job characteristics during work activities (Barrick et al., 2013). For instance, the affective-reactivity hypothesis (Gross, Sutton, & Ketelaar, 1998; Larsen & Ketelaar, 1991) suggests that individuals who are high in positive affect are better able to detect and respond positively to situations of reward. Trait positive affect is often considered the core characteristic of extraversion (Watson & Clark, 1997). Early laboratory experiments such as those performed by Larsen and Ketelaar (1991) found that participants responded differently to positive and negative mood inductions based on their levels of extraversion and neuroticism. Individuals who were high in extraversion were more sensitive to positive mood inductions than were individuals who were low in extraversion. Similarly, recent work into affective reactivity shows that individuals who are high in extraversion respond more positively to appetitive situations such as challenging work situations and sport activities (Oerlemans & Bakker, 2014; Smillie et al., 2012).

In line with the affective reactivity hypothesis, we argue that individuals who are high (vs. low) in trait positive affect react differently to the perceived availability of motivating job characteristics during a specific work activity. It is important to note that we define positive affect as a personality characteristic (i.e., trait positive affect is often considered the core of extraversion; Watson & Clark, 1997), and not as positive affect as experienced at work. Research has shown that individuals who are high in trait positive affect have a stronger Behavioral Activation System (BAS; Gray, 1987; Watson, Wiese, Vaidya, & Tellegen, 1999). The BAS system creates dopaminergic pathways to the brain in response to signals of reward (Cohen, Young, Baek, Kessler, & Ranganath, 2005). The feelings accompanying BAS activation include positive emotional reactions such as happiness. In contrast, individuals low in trait positive affect are less able to detect and react positively to signals of reward. In line with recent personality research on affective-reactivity (Larsen & Ketelaar, 1991; Oerlemans & Bakker, 2014; Smillie et al., 2012), we argue that the positive relationship between perceived motivating job characteristics during work activities and happiness will be stronger for individuals who are high (vs. low) on trait positive affect. Based on the above reasoning, we predict the following:

> *Hypothesis 2:* The positive relationship between perceived motivating job characteristics and happiness during work activities is stronger for employees who are high (vs. low) in trait positive affect.

Deviations From the Norm and Individual Differences in Trait Positive Affect

A third important consideration is that deviations from the norm and individual differences in trait positive affect may operate in concert to determine happiness of individuals during specific work activities. In particular, the ALT perspective takes a situational approach and implies that all individuals react similarly to deviations from the norm (Bowling et al., 2005; Helson, 1964; Sheldon & Lyubomirsky, 2012). Importantly, individual differences are not considered as a factor that may influence the way in which individuals react to deviations from the norm. However, recent research in areas outside the organizational context show that individuals may react differently to changes in their life, depending on their personality traits (Anusic, Yap, & Lucas, 2014; Luhmann, Hofmann, Eid, & Lucas, 2012). Moreover, personality traits appear to regulate how sensitive individuals are toward their environment (Boyce & Ellis, 2005). Thus, it may be the case that deviations from activity-rated job characteristics as compared to the norm (i.e., motivating job characteristics that are present at the job level) *and* differences in trait positive affect interact to determine a person's happiness level during specific work activities. For example, affective reactivity suggests that individuals who have low trait levels of positive affect—because of their lower BAS—have a high threshold to detect and react positively to signals of pleasure and reward. As such, they may need a high deviation from the norm—that is, motivating job characteristics that are present at the job level—to detect and react positively to signals of motivation and reward during a specific work activity. In contrast, individuals who are high in positive affect—because of their high BAS—have a low threshold toward detecting and responding positively to signals of reward. As such, they may be more sensitive to, and respond positively to, motivating job characteristics during specific activities—even when deviations from the norm are low. Hence, we state the following:

> *Hypothesis 3:* Individuals who are low in positive affect will be happier as a result of the perceived availability of motivating job characteristics during work activities when similar motivating job characteristics in their job in general are low, but not when similar motivating job characteristics in their job are high. Individuals who are high in positive affect will be happier as a result of the perceived availability of motivating job characteristics during work activities, both when motivating job characteristics at the job level are low and high.

Method

Procedure

The study design was automatically approved by our university review board, as participation in this study was voluntary and the nature of the design was follow-up research without any kind of intervention. Participants were recruited through word of mouth and social media networking (Twitter, LinkedIn, and Facebook). All participants needed to be proficient in English and have a job in which they worked for at least three consecutive days a week. Those who filled out the diary on five consecutive workdays entered a prize-draw and could win an iPod Touch. During the first day, participants were asked to complete a general questionnaire. Thereafter, during the next five consecutive workdays, employees were asked to reconstruct their workday using a Day Reconstruction Method (DRM; Kahneman et al., 2004). The DRM asked participants to first report their work activities of the day in chronological order, after which they answered specific experiences for each of the reported episodes (i.e., the degree to which motivating characteristics were present during each of the reported work activities, as well as how happy they had felt during each activity). The purpose of using the DRM was to elicit accurate episodic memories of subjective experiences that happened in the recent past, which are then reported with minimal recall bias (Kahneman et al., 2004). The DRM has been empirically compared with experience sampling methods, and results show very similar patterns in terms of reported emotions during specific episodes (e.g., happiness; Dockray et al., 2010). Note that the DRM has been validated and used in other samples of employees (Dockray et al., 2010; Kahneman et al., 2004; Oerlemans & Bakker, 2014; Stone et al., 2006).

Participants

A total of 121 participants expressed interest in the study by sending us their e-mail addresses. Participants were included in our study sample if they completed the trait questionnaire and filled out at least one DRM questionnaire in which participants reported at least two or more work-related activities, as this allowed us to correct for happiness as experienced during a previous activity. As such, our study sample consisted of 68 participants.

Native English speakers (U.K.) as well as non-native speakers (The Netherlands, France, and Germany) participated in this study. Participants reported a total of 741 work-related activities, across the five workdays, and 22.1% of the participants worked part-time (i.e., less than 35 hr per week). Consequently, the average number of DRM diaries filled out by employees across the five workdays was 3.09 (SD = 1.53). Although representative samples are generally preferred, the present study used a convenience sample and focused on within-person deviations from the participants' personal baseline, as a function of motivating job characteristics at the job level and trait positive affect. The mean age of the sample was 33.01 years (SD = 12.08), 63% was female, and participants worked on average for 39 hr per week (SD = 8.91). The majority of the participants (63%) was employed within the services industry, and held jobs such as account managers, HR managers, office managers, ICT professionals, and financial managers. Other participants were employed in educational/childcare services (8%; e.g., teachers, social workers), scientific research (7%), retail/hospitality (9%; e.g., fashion designers), or held other jobs (13%; e.g., chemists, architects). Regarding marital status, 48.7% of the participants were single, 21.5% married, 29.1% in a relationship, and 0.7% divorced or separated. In our final sample, employees reported 185 working days, and 741 work-related activities.

Measures

Between-person variables. To measure *motivating job characteristics at the job level*, the revised Job Diagnostic Survey (JDS) of Idaszak and Drasgow (1987) was used. This questionnaire consisted of 10 items, rated on a 7-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*). There were two statements for each of the five components of the job characteristics model—skill variety, task identity, task significance, autonomy, and feedback. Examples are "The job provides me the chance to completely finish the pieces of work I begin" (task identity), and "The job itself is significant or important in the broader scheme of things" (task significance). Cronbach's alpha for the overall job characteristics scale was α = .85. For the separate subscales, the values were task identity (α = .86), task significance (α = .82), job-based feedback (α = .81), autonomy (α = .80), and skill variety (α = .62).

Positive affect was measured using 5 items from the International Positive and Negative Affect Scale Short Form (I-PANAS-SF; Thompson, 2007). Participants answered the following question: "Thinking about yourself and how you normally feel, to what extent do you generally feel," followed by five positive states; alert, inspired, determined, attentive, and active. Answering categories were on a 7-point scale, ranging from 1 (*never*) to 7 (*always*). Cronbach's alpha was α = .74.

Within-person variables.

Daily reconstruction of work activities. Participants were asked to indicate begin and end times for every work activity. Participants could choose predefined categories of work activities from a drop-down list—including activities such as core aspects of the job, administrative duties, meetings with colleagues, clients, or the supervisor, and taking a break. Additionally, participants could write down a unique work-related task that was not covered in the list. After reconstructing all their daily work activities in a chronological order, participants answered six questions for each individual activity; 5 items referred to the five motivating characteristics of Hackman and Oldham (1980; see below), and 1 final item related to momentary happiness during that particular work activity.

Out of the 741 reported activities, 38.1% related to performing core aspects of the job, 16.7% referred to administrative duties, 19.4% involved meetings with either clients, supervisors or colleagues, 7.4% related to having a break (e.g., short break, lunch), and 18.4% related to "other" work-related activities, of which 5.8% could be recategorized as planning activities (e.g., scheduling, planning of projects or meetings). Note that for this study, we were interested in the perceived availability of job characteristics during such work-related activities rather than the activity types itself.

Motivating job characteristics during each work activity were measured with five items from the JDS. We adjusted the items to relate to the perceived availability of each of the five motivating

characteristics during work activities. The following items were used: "This activity or task was neither simple, nor repetitive" (skill variety); "This activity or task consisted of working on an entire piece of work from beginning to end" (task identity); "This activity or task was one where a lot of other people could be affected by how well it was done" (task significance); "This activity or task allowed me to use my personal initiative or judgement in carrying it out and gave me freedom in how I did it" (autonomy); and "This activity or task itself provided clues about whether or not I was performing well" (feedback). All five items were rated on a scale ranging from 1 (*Not at all*) to 7 (*Completely*). The internal consistency for the five items across all reported activities ranged from Cronbach's alpha = .67 to α = .76, depending on the workday.

Happiness during work activities was measured with one item, namely "How happy did you feel during this activity or task?" Participants answered this item on a scale that ranged from 1 (Not at all happy) to 10 (Extremely happy). A one-item happiness scale has been shown to have good temporal stability, and good concurrent, convergent, and divergent validity (Abdel-Khalek, 2006).

Statistical Analysis

Hierarchical linear modeling was used, as the data has a hierarchical structure with work tasks nested within days, and within persons. Multilevel analyses were performed to take the hierarchical nature of the data into account (e.g., Hox, 2010). Between-person variables (i.e., motivating job characteristics at the job level and trait positive affect) were centered on the grand mean, and within-person variables (i.e., motivating job characteristics during work activities) were centered on the person mean. Lagged effects of motivating job characteristics and happiness of the previous activity (*t*-1) were included in the multilevel analyses to correct for potential spillover effects of happiness and motivating job characteristics across activities within the same day (e.g., Rodríguez-Muñoz, Sanz-Vergel, Demerouti, & Bakker, 2014).

The multilevel data were analyzed using the Multilevel for Windows software (MLwiN; Rasbash, Charlton, Browne, Healy, & Cameron, 2009), and cross-level moderation effects were analyzed using the method and online calculator of Preacher, Curran, and Bauer (2006). Note that multilevel modeling does not assume equal sample sizes (Hox, 2010), unlike other statistical techniques such as in a repeated-measures ANOVA. This is important, as our data included fluctuations in the number of daily work activities as reported by the respondents across workdays.

Results

Descriptive Statistics

Table 1 shows means, standard deviations, and correlations of the study variables. Correlations below the diagonal represent between-person correlations, and correlations above the diagonal represent within-person correlations. The intraclass correlation (ICC) for happiness during work tasks was 64.5%, showing that about two thirds of the variance in momentary happiness could be attributed to variations that occur on the within-person, work activity level. The ICC for job characteristics at the work activity level showed that 63.5% could be attributed to the within-person, work activity level. Please note that we also tested a three-level model with activities nested within days, and days nested within persons. However, results indicated that day-level variances for happiness were very low (4.66% of the total variance resided on the day level). As we do not have any predictions on the day-level, we decided to focus on a two-level model that distinguished between the person and activity level.

Multilevel Model of Happiness During Work Activities

To test the hypotheses, a two-level model was set up that included three nested models, with happiness during work activities as the outcome variable (see Table 2). At the between-subjects

Table 1
Means, Standard Deviations, and Correlations of the Study Variables

Variable name	Mean	*SD*	Correlations													
			1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Trait positive affect	4.80	.92	—													
2. Job characteristics at job level	5.08	.98	.61	—												
3. SV at job level	4.96	1.18	.48	.76	—											
4. TI at job level	4.55	1.61	.21	.68	.48	—										
5. TS at job level	5.01	1.44	.60	.63	.34	.21	—									
6. AU at job level	5.18	1.35	.33	.62	.42	.21	.45	—								
7. FB at job level	4.99	1.21	.57	.73	.53	.37	.45	.33	—							
8. Motivating job characteristics during work activities	4.56	1.19	.60	.59	.37	.28	.33	.51	.54	—	.68	.54	.74	.58	.77	.40
9. SV during work activities	4.27	1.68	.23	.37	.40	.29	−.17	.28	.35	.60	—	.11	.44	.29	.39	.26
10. TI during work activities	4.89	1.84	.46	.47	.23	.36	.31	.29	.37	.62	.07	—	.16	.24	.27	.28
11. TS during work activities	4.18	1.90	.48	.22	.08	−.07	.51	.26	.32	.62	.15	.21	—	.18	.60	.12
12. AU during work activities	5.10	1.81	.29	.47	.26	.21	.20	.63	.23	.74	.38	.37	.29	—	.27	.42
13. FB during work activities	4.35	1.80	.56	.49	.31	.19	.23	.25	.58	.81	.52	.45	.40	.42	—	.26
14. Happiness during work activities	6.51	1.95	.42	.45	.42	.22	.31	.50	.38	.54	.33	.31	.34	.41	.43	—

Note. SV = skill variety; TI = task identity; TS = task significance; AU = autonomy; FB = feedback. Correlations below the diagonal are person-level correlations (N = 68) with correlations $r|.24|$ being significant at $p < .05$; $r|.31|$ at $p < .01$; $r|.37|$ at $p < .001$. Correlations above the diagonal are within-person, activity level correlations (N = 741) with correlations $r|.10|$ being significant at $p < .01$ and $r|.13|$ being significant at $p < .001$.

Table 2
Effects of Motivating Job Characteristics at the Job Level, Motivating Job Characteristics During Work Activities, and Trait Positive Affect on Momentary Happiness During Work Activities

Variable name	Happiness during activity Model 1 Estimate	*SE*	*t*	Happiness during activity Model 2 Estimate	*SE*	*t*	Happiness during activity Model 3 Estimate	*SE*	*t*
Fixed Part									
Constant	6.501	.157	41.408***	6.539	.178	36.736***	6.563	.179	36.665***
Between-subjects									
Positive affect (PA)	.419	.191	2.194*	.287	.202	1.421	.281	.202	1.391
Motivating characteristics at the job level (JCJ)	.398	.192	2.073*	.467	.214	2.182*	.440	.215	2.047*
Within-subjects									
Time of the day	−.016	.031	−.516	−.017	.031	−.548	−.019	.031	−.613
Motivating job characteristics previous activity (lag)	.093	.074	1.257	.093	.074	1.257	.099	.074	1.338
Happiness previous activity (lag)	−.010	.045	−.222	−.011	.045	−.244	−.013	.045	−.289
Motivating job characteristics during the activity (JCA)	.335	.130	2.577**	.353	.116	3.043***	.257	.137	1.876
Interactions									
JCJ × PA				−.053	.153	−.346	−.087	.156	−.558
JCJ × JCA				−.327	.150	−2.180*	−.235	.162	−1.451
PA × JCA				.341	.157	2.172*	.313	.150	2.087*
PA × JCA × JCJ							.157	.069	2.275*
−2 × log (lh)		2124.866			2096.719			2093.116	
Diff−2 × log		798.631			28.147			3.603	
Df		6			3			1	
Random Part									
slope variance JCA (*bj*)	.365	.144	2.535**	.248	.112	2.214*	.221	.104	2.125*
Level 2 intercept variance (person)	.851	.234		.836	.231		.826	.232	
Level 1 intercept variance (activity)	2.322	.153		2.336	.154		2.337	.153	

Note. N = 68 persons; N = 741 activities. Model 1 was compared to a null model with the intercept as the only predictor ($y = 6.293$; $SE = .169$; $t = 37.237$; $-2 \times \log = 2923.497$; Level 2 variance = 1.433, $SE = .322$; Level 1 variance = 2.605, $SE = .142$).
* $p < .05$. ** $p < .01$. *** $p < .001$.

(between-person) level, Model 1 included motivating job characteristics at the job level and trait positive affect. At the within-subjects (within-person) level, time of the day, motivating job characteristics during specific work activities (t0), and lagged effects of motivating job characteristics and happiness of the previous activity (t-1) were included. Model 2 contained three two-way interaction terms; motivating job characteristics at the job level and motivating job characteristics during work activities; trait positive affect and motivating job characteristics during work activities; and trait positive affect and motivating job characteristics at the job level. Finally, Model 3 included the three-way interaction of motivating job characteristics at the job level, motivating job characteristics during work activities, and trait positive affect.

Results in Model 1 showed that motivating job characteristics during work activities ($t = 2.577$; $p < .01$) and motivating job characteristics at the job level, $t = 2.073$, $p < .05$, were both positively associated with happiness during work activities. Also, trait positive affect was significantly and positively related to happiness during work activities, $t = 2.194$, $p < .05$. Thus, individuals were happier during work activities when they perceived more motivating job characteristics at the job and the activity level. Also, the higher individuals were in trait positive affect, the happier they felt during work activities.

Testing the Hypotheses

Hypothesis 1 stated that the positive relationship between perceived motivating job characteristics and happiness during a specific work activity would be stronger for employees who generally have low (vs. high) levels of similar motivating job characteristics in their job in general. To test this hypothesis, we first analyzed whether there were indeed significant differences between persons in the relationship between motivating job characteristics at the activity level and happiness. The random part of Model 1 indeed confirmed that the slope of motivating job characteristics during work activities on happiness varied significantly across individuals (estimate = .365, $SE = .144$, $t = 2.535$, $p < .01$). In addition, Table 2, Model 2 showed that the cross-level interaction term between perceived motivating job characteristics of the job in general and motivating job characteristics during specific work activities was significant, $t = -2.180$, $p < .05$. The nature of this interaction effect is displayed in Figure 1. We conducted simple slope analyses as recommended by Preacher et al. (2006) to further interpret the nature of this cross-level interaction. We used the standard deviation to identify employees as either low (one standard deviation below the mean) or high (one standard deviation above the mean) on job characteristics at the job level (a between-person variable). The simple slope analyses revealed that the relationship between motiving job characteristics at the work activity level and employee happiness was not significant under the

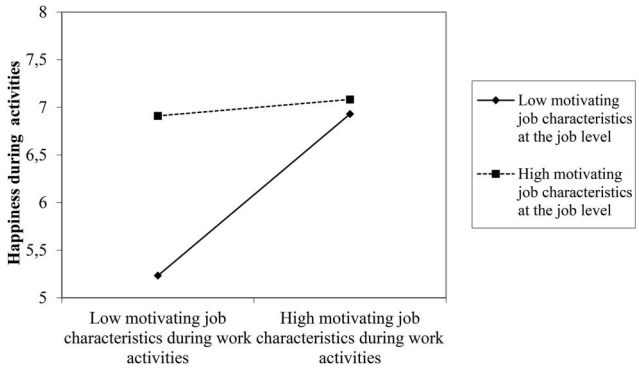

Figure 1. Cross-level interaction effect of motivating job characteristics at the job level and motivating job characteristics during work activities on momentary happiness during work activities.

condition that motivating job characteristics at the job level were high (+1 *SD* above the mean; $z = .095$, $p = .92$). However, perceived motivating job characteristics at the activity level did relate positively to happiness during work activities under the condition that motivating job characteristics at the job level were low (−1 *SD* below the mean; $z = 3.88$, $p < .001$), which confirmed Hypothesis 1. Note that we also examined cross-level interaction effects for each of the five job characteristics separately, which provided similar results as compared to the interaction plot as displayed in Figure 1. These additional analyses are available on request from the first author.

Hypothesis 2 stated that the positive relationship between motivating job characteristics and happiness at the work activity level would be stronger for employees who were high (vs. low) on trait positive affect. Results in Table 2, Model 2, indeed showed a significant cross-level interaction of trait positive affect and motivating job characteristics at the activity level, $t = 2.172$, $p < .05$. Figure 2 shows the nature of this interaction in detail. Simple slope analyses revealed that perceived motivating job characteristics at the activity level related positively to happiness during work activities under the condition that trait positive affect was high (+1 *SD*; $z = 6.27$, $p < .001$), but not under the condition that positive affect was low (−1 *SD*; $z = 1.43$, $p = .15$), which confirmed

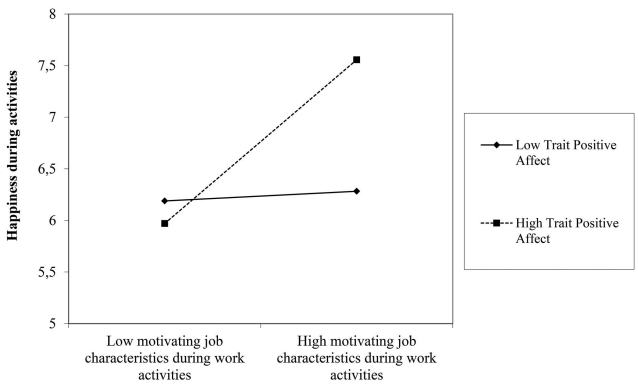

Figure 2. Cross-level interaction effect of trait positive affect and motivating job characteristics during work activities on momentary happiness during work activities.

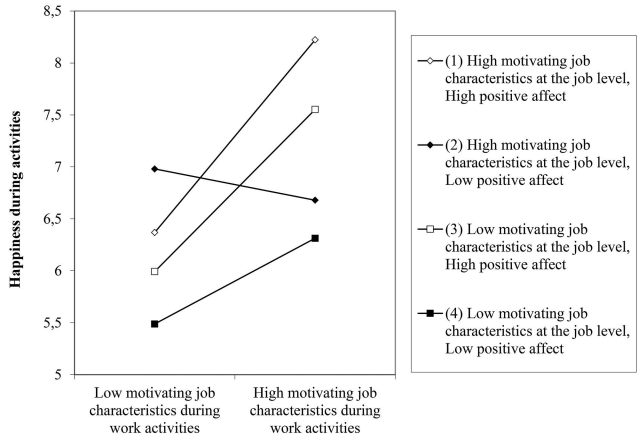

Figure 3. Three-way cross-level interaction effect of trait positive affect, motivating job characteristics at the job level, and motivating job characteristics during work activities on momentary happiness during work activities.

Hypothesis 2. Put differently, perceived motivating job characteristics at the activity level were only positively related to happiness during work activities for individuals who were high in trait positive affect.

Hypothesis 3 stated that for individuals who were low in trait positive affect, perceived motivating job characteristics at the work activity level would relate positively to happiness during work activities under the condition that similar motivating job characteristics at the job level would be low. However, for individuals who were high in trait positive affect, perceived motivating job characteristics at the work activity level would relate positively to happiness during work activities, when motivating job characteristics at the job level would be both low and high. Model 3 of Table 2 showed this three-way interaction effect of perceived motivating job characteristics in the job in general, motivating job characteristics at the activity level, and trait positive affect. This interaction effect was indeed significant ($t = 2.275$; $p < .05$). To further interpret this interaction effect, we plotted the interaction in Figure 3 and conducted simple slope analyses using the HLM three-way computational tool of Preacher et al. (2006). As hypothesized, results showed that for individuals who were low in trait positive affect (−1 *SD*), perceived motivating characteristics at the work activity level were positively related to happiness under the condition that the same motivating job characteristics at the job level were also low (−1 *SD*; $z = 1.99$, $p < .05$), but *not* when they were high (+1 *SD*; $z = -1.73$, *ns*). For individuals who were high in trait positive affect (+1 *SD*), motivating job characteristics at the work activity level related positively to happiness, both when similar motivating job characteristics at the job level were low (−1 *SD*; $z = 3.30$, $p < .001$) and high (+1 *SD*; $z = 2.03$, $p < .05$). These findings supported Hypothesis 3.

Discussion

This study extends Job Characteristics Theory (JCT; Hackman & Oldham, 1980) by taking a multilevel perspective on employee well-being (cf. Bakker, 2015). Using an innovative DRM approach, this study demonstrated that the episodic, within-person

relationship between perceived motivating job characteristics and employee happiness during work activities differed substantially depending on between-person differences in (a) motivational job characteristics at the job level, and (b) trait positive affect. We discuss the theoretical contributions of the study in more detail below, as well as limitations, and implications for practice and future research.

Episodic and Job-Level Motivating Job Characteristics

A first contribution of this study is that the within-person, episodic relationship between (perceived) motivating job characteristics and happiness during specific work activities varies substantially, depending on between-person differences in motivating characteristics at the job level. As hypothesized based on ALT (Bowling et al., 2005; Sheldon & Lyubomirsky, 2012), results show that the episodic relationship between perceived motivating job characteristics and happiness is positive under the condition that similar motivating job characteristics at the job level are low, but not under the condition that they are high. Similar cross-level moderation effects were found for each of the five motivating job characteristics (available on request from first author). This is in line with ALT, which proposes that individuals (eventually) habituate to new situations, and that psychobiological systems primarily react to deviations from one's current adaptation level. Habituation processes are a result of fundamental human survival mechanisms in which constant stimuli fade into the background, so that enough psychological resources remain available for individuals to deal with novel stimuli that require immediate attention (Fredrick & Loewenstein, 1999).

This finding has important theoretical and practical implications for the workplace. It suggests that the relationship between perceived motivating job characteristics and happiness during specific work activities depends on the degree to which similar motivating characteristics are also present in the general work environment, rather than the overall favorability of the circumstances alone (Diener et al., 2006; Kahneman, 1999; Sheldon & Lyubomirsky, 2012). Put differently, employees are happier during specific work activities when there is a *positive difference* in the perceived availability of motivating job characteristics during a work episode as compared to the availability of motivating job characteristics in the job. For example, employees who usually experience low skill variety in their job are significantly happier when engaging in work activities that *do* allow them to use various skills. In contrast, for employees who already enjoy high levels of skill variety in their job in general, the perceived availability of skill variety at the work activity level *does not* relate to increased happiness during work activities. Our findings extend findings of previous studies that already demonstrated that job-level (Fried & Ferris, 1987; Humphrey et al., 2007) and day-level (Bakker & Bal, 2010; Xanthopoulou et al., 2009) motivating job characteristics are positively associated with employee well-being. This study builds on these findings by showing that motivational job characteristics at the episodic and between-person level interact and predict variations in employee happiness during specific work episodes.

Individual Differences in Trait Positive Affect

A second contribution of this study is that it provides a theoretical rationale for how individual differences in trait positive effect may affect the episodic relationship between perceived motivating job characteristics and happiness during work activities. As hypothesized, results show that individuals who are high in trait positive affect react more positively to perceived motivating characteristics during work activities as compared to individuals who are low in trait positive affect. This is in line with new insights based on affective-reactivity, which have shown that individuals who are high in positive traits (e.g., extraversion, positive affect) are more sensitive to appetitive stimuli (Oerlemans & Bakker, 2014; Smillie et al., 2012; Watson et al., 1999). Variations in trait positive affect are linked to the Behavioral Activation System (BAS), which regulates appetitive motivation and facilitates the direction of approach behavior toward desired goals (e.g., Depue & Collins, 1999; Depue & Morrone-Strupinsky, 2005; Gray, 1987). Specifically, the BAS creates dopaminergic pathways to the brain in response to signals of reward (Cohen et al., 2005), and directs individuals toward situations and experiences that potentially yield reward. The basic function of the BAS is to ensure that individuals obtain resources that are essential to them (Watson et al., 1999). Thus, individuals who are high in positive affect are better able to detect and react positively to signals of reward—like the perceived availability of motivating job characteristics during activities—as compared to individuals who are low in positive affect. In conclusion, it is important to consider individual differences in the workplace, as those low in positive affect may be less sensitive to detect potential rewards in their work environment in terms of (perceived) autonomy, skill variety, task identity, task significance, and feedback. Being aware of individual differences may be particularly important in terms of effective coaching.

Motivating Job Characteristics and Trait Positive Affect

A third contribution of this study is that it provides a theoretical explanation of how individual differences in trait positive affect further qualify the relationship between motivational job characteristics and happiness as predicted based on ALT. Results show that individuals who are low in positive affect only react positively (i.e., in terms of happiness) to perceived motivating job characteristics during specific work episodes, when similar motivating job characteristics at the between-person job level are low, but not when they are high. Vice versa, individuals who are high in positive affect react positively to the perceived availability of motivating job characteristics during work episodes, both when motivating job characteristics at the job level are low and high. These findings qualify theoretical considerations based on ALT. Specifically, for individuals who are low in trait positive affect, the pattern is consistent with ALT, whereas those who are high in positive affect show a pattern that is more in line with the affective-reactivity hypothesis. Hence, when there is a substantial deviation from the norm (i.e., when motivating characteristics at the job level are low), those low in positive affect react positively to the perceived availability of job characteristics during work episodes. However, when there is no substantial deviation from the norm (i.e., when motivating job characteristics at the job level are high), individuals low in positive affect do not react positively to the perceived availability of motivating job characteristics during work episodes, presumably because they are unable to detect such small differences in the first place.

Vice versa, individuals high in positive affect always react positively to the perceived availability of motivating job characteristics during work episodes, regardless of whether deviations from the norm (i.e., job characteristics at the job level) are high or low. This is theoretically important, as it directly relates to the fundamental process of why individuals who are high in positive affect may be happier in the first place. Three main explanations may be that individuals high in positive affect (1) are happier because they live in a more favorable environment (Pavot, Diener, & Fujita, 1990); (2) simply have a higher baseline level of positive affect anytime, anywhere (Gross et al., 1998); or (3) are happier because they have a stronger BAS that allows them to better detect and respond positively to situations of reward (Larsen & Ketelaar, 1991; Strelau, 1987; Tellegen, 1985). The pattern we find for those high in trait positive affect favor the third explanation. Individuals who are high in positive traits (e.g., extraversion, positive affect) are more sensitive to appetitive stimuli (Oerlemans & Bakker, 2014; Smillie et al., 2012; Watson et al., 1999). As such, they are better able to detect and react positively to signals of reward—like the perceived availability of motivating job characteristics during activities—even under conditions when motivating job characteristics are already high at the "normative," job level.

In sum, then, our findings demonstrate that (a) environmental circumstances such as motivating job characteristics at the job level, (b) individual differences in trait positive affect, and (c) a combination of the two, moderate the relationship between the perceived availability of motivating job characteristics and happiness during activities at the episodic level in unique ways.

Study Limitations

No study is without limitations. First, we examined employee happiness without also considering other positive or negative affective states. As the DRM is quite demanding for participants, we used a one-item measure of happiness to keep participants from becoming overburdened (Abdel-Khalek, 2006). Future research should examine what other positive and negative states are elicited by motivating job characteristics during work episodes. For example, Fisher et al. (2013) demonstrated that task significance during work activities relates to positive *and* negative affective states, showing that task significance may be enjoyable (Fried & Ferris, 1987; Humphrey et al., 2007), but may also present challenges and risks that may be stressful (N. P. Podsakoff, LePine, & LePine, 2007). Moreover, the present DRM study did not include situational aspects other than motivating job characteristics that could determine a person's happiness during specific work activities, such as the consistency of positive or negative experiences prior to the focal time period, the degree to which activities were demanding or stressful, the specific nature of work activities (e.g., administrative tasks, meetings, cognitive tasks), and their pattern or temporal order during the day.

Second, we used one-item measures for each of the five motivating job characteristics during work activities, so we could not determine reliabilities for each individual motivating job characteristic at the episodic level. The main reason for doing so was to keep participants from becoming overburdened. Note that for each of the reported work activities, participants had to fill out six items on job characteristics and happiness. Reis and Gable (2000) argued that daily assessments should not exceed 7 minutes in total, and Ohly, Sonnentag, Niessen, and Zapf (2010) recommended limiting assessments of daily constructs to five items or less. Still, future studies may focus on multiple item scales assessing only one or two motivating job characteristics that appear to matter most within particular jobs.

Third, this study does not include any objective outcomes, such as objective results or other ratings of performance at the activity level. Note that diary studies already showed that work behaviors such as creativity at work (Amabile, Barsade, Mueller, & Staw, 2005) and job performance (Binnewies, Sonnentag, & Mojza, 2009; Fuller et al., 2003) fluctuate significantly on a within-person, daily level. Future research may go one step further, by focusing on fluctuations in motivating job characteristics during work activities, which may affect an individual's performance from one work-related activity to the next within a workday.

Fourth, employees filled out five motivating job characteristics during each work activity, followed by one question on how happy they were during each work activity. This sequence of first answering questions on motivating job characteristics before answering questions regarding happiness may have influenced the way in which individuals rated their happiness during each of the work activities. Please note, however, that it is a common procedure in DRM-based studies for participants to fill out multiple questions relating to one episode (e.g., time, location, activity, multiple emotional states; Kahneman et al., 2004; Stone et al., 2006). A validation study of Dockray and colleagues (Dockray et al., 2010) showed that happiness during activities as captured with a DRM correlated highly with ratings of happiness obtained with ESM in real-time (ranging from $r = .71$ to $r = .90$). Still, future studies should examine if variations in the DRM as concerns the sequence of answering multiple questions would significantly influence answering patterns.

Fifth, the data were dependent on self-reports, raising concerns about common-method variance (P. M. Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). The DRM (Kahneman et al., 2004)—although a step forward as compared to global survey techniques—is still a self-report instrument, and self-reports may be subject to social desirability or a self-serving bias. However, by using person-centered scores in the analyses, and by including lagged effects of motivating job characteristics and happiness during the previous work activity, we eliminated the potential influence of response tendencies stemming from individual differences, and we thereby reduced the problems often associated with common-method data (Binnewies et al., 2009).

Sixth, employees reported motivational job characteristics and happiness during work activities at the same point in time. Therefore, the data show that there is a relationship between motivating job characteristics and happiness at the activity level, but we cannot test for causality (i.e., the notion that motivational job characteristics during a specific activity cause happiness and not vice versa) at the within-activity level. Future (quasi-) experimental designs may be helpful for an even more detailed examination of the causal relationship between job characteristics and happiness within a single activity. Moreover, future designs should integrate different patterns of adaptation of individuals to motivating job characteristics over longer time periods, depending on differences in personality traits such as trait positive affect.

Finally, we want to note that adding lagged effects to multilevel models may influence results. In such an autoregressive model,

estimates and errors of the autocorrelations (lagged effects) are not independent from the outcome variable. This may result in coefficients for the lagged variable on the dependent variable being (too) large and coefficients for other variables in the model being (too) small (e.g., Schuurman, Ferrer, de Boer-Sonnenschein, & Hamaker, 2016). We therefore examined whether adding lagged effects to the model would have this result. This was not the case, as our multilevel models showed that both lagged effects were not significantly associated to the outcome variable. Moreover, leaving the lagged effects out of our model did not impact our results in any way. We are therefore confident that our model does not suffer from underestimation of the independent variables by including autoregressive elements (lagged effects).

Implications for Practice

This study suggests that organizations may benefit from assessing the five motivating job characteristics of Hackman and Oldham (1980) at an episodic level. In most cases, organizations still use a so-called "between-person" approach, where motivating job characteristics are assessed at the job level. We argue that organizations could benefit from analyzing fluctuations in motivating job characteristics during work activities. For example, management could assess how jobs are designed around a stream of chronological work activities throughout the day and investigate the type of activities offering the most or the least motivational potential. Of course, jobs will always contain some work activities that offer low motivational potential (e.g., administrative duties are usually not that motivating), and organizations may therefore think about how to implement variations in different kinds of work activities. For example, it is interesting to study whether planning demotivating job activities on one day would increase employee happiness, as compared with planning a small number of activities without motivational potential on all workdays. Vice versa, organizations could plan one workday where employees can exclusively work on activities that have a high motivational potential and assess whether this would lead to sustained increases in employee happiness over time.

Employees themselves could also proactively change the way in which they organize and evaluate their work activities. Recent work on job crafting shows that employees can enhance their well-being and performance at a daily level through increasing work-related job challenges and job resources (Gordon et al., 2018; van den Heuvel, Demerouti, & Peeters, 2015; van Wingerden, Bakker, & Derks, 2017). Employees could benefit from a systematic assessment that provides feedback on how they experience variations in motivating job characteristics across the different work activities they perform throughout the workday. Based on such detailed feedback, employees could decide how to plan their work activities, or perhaps seek novel, challenging work activities with a high motivational potential.

Conclusion

This study extends work on JCT (Hackman & Oldham, 1980) by taking a multilevel perspective. In line with affective reactivity, the findings show that individuals who are high in positive affect always react positively to the perceived availability of motivating job characteristics during work episodes. In contrast, and in line with ALT, we found that those who are low in positive affect only react positively to the perceived availability of motivating job characteristics during work episodes when similar motivating job characteristics at the job level are low. As such, this study offers a multilevel and dynamic approach to job characteristics theory in which combinations of general and proximal motivating job characteristics, as well as individual differences in positive affect, explain changes in emotional experiences of employees across their daily work activities.

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