

Employee well-being: A multilevel model linking work and nonwork domains

Remus Ilies and Kelly M. Schwind

*Department of Management, Eli Broad Graduate School of Management,
Michigan State University, East Lansing, MI, USA*

Daniel Heller

Faculty of Management, Tel-Aviv University, Tel Aviv, Israel

In this article, we review recent methodological developments that have enabled conceptual advances addressing intraindividual processes leading to psychological well-being. We contend that the introduction of dynamic assessment methodologies for sampling experiences, feelings, and behaviours on and off the job, together with the implementation of multilevel modelling strategies in organizational research on well-being, should lead to the development of richer models of employee well-being (compared to existing theoretical models). Accordingly, we develop a model of employee well-being that considers both personal and situational predictors, and both work and nonwork well-being indicators, as well as the real-time relationships between well-being antecedents and indicators across these two life spheres.

Most of the basic psychological research on well-being has focused on the antecedents of individual differences in subjective well-being (Kahneman, Diener, & Schwarz, 1999). Subjective well-being is generally defined as “how people evaluate their lives—both at the moment and for long periods such as the last year” (Diener, Oishi, & Lucas, 2003, p. 404). Notably, momentary evaluations are specifically mentioned. Additionally, Warr’s (1987) view on affective well-being, which refers to an individual’s feelings and arousal, suggests that researchers should consider time as another dimension of affective well-being, and examine both transient, momentary feelings and more permanent or enduring affective tendencies. However, subsequent

Correspondence should be addressed to Remus Ilies, Department of Management, Eli Broad Graduate School of Management, Michigan State University, N 475 North Business Building, East Lansing, MI 48824, USA. E-mail: ilies@msu.edu

theorizing and research on employee well-being has discounted the role of daily events and experiences and has largely ignored intraindividual fluctuations in momentary or daily states indicating well-being (e.g., job satisfaction, Ilies & Judge, 2002; life satisfaction, Heller, Watson, & Ilies, 2006). Furthermore, even though processes that link employees' experiences and feelings at work to their experiences, feelings, and behaviour off-work, such as affective spillover, are inherently dynamic (e.g., Rothbard, 2001), the majority of previous research on spillover only examines between-individual differences (Judge & Ilies, 2004). In this article, we contend that recent advances in methods for collecting data in the field and in statistical modelling will help address the limitations associated with the reliance on between-individual designs in traditional research on employee well-being.

Traditionally, work-derived well-being has been studied using the construct of job satisfaction. Paralleling the literature on general well-being (see Heller, Watson, & Ilies, 2004), there is empirical evidence supporting both situational (e.g., Fried & Ferris, 1987) and dispositional (Judge, Heller, & Mount, 2002; Staw & Cohen-Charash, 2005) influences on job satisfaction. In 1976, Locke defined job satisfaction as "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences" (p. 1300). However, as noted, traditional job satisfaction research has ignored this state-like view and suffers from several limitations that stem primarily from the lack of appropriate methodologies.

First, although subjective well-being includes momentary evaluations of one's life or life domains (Diener et al., 2003), research aimed at uncovering situational influences on employees' job satisfaction has mostly focused on stable work characteristics (e.g., feedback or autonomy; Fried & Ferris, 1987) or job features (e.g., pay). We believe this is a major limitation in the literature on employee well-being because it discounts the role of discrete (momentary) situational influences on employee well-being and, thus, precludes the study of situational influences (other than stable features) on well-being at work. Second, the job satisfaction construct has been conceptualized as relatively stable across time and has been measured with trait-like surveys. Such a trait-like conceptualization ignores intraindividual fluctuations in job satisfaction and does not permit the study of discrete situational influences (events) on satisfaction and well-being. Third, the majority of previous job satisfaction research has relied on single- or two-wave designs, which are inadequate for studying intraindividual functioning across specific situations and time.

In general, we believe that the lack of adequate methods for studying intraindividual fluctuations and Person \times Situation effects in organizational research has hindered progress in job satisfaction theory to move the field beyond individual difference models. Furthermore, we believe that theory

and research on employee well-being have been restricted in scope. Therefore, we suggest the scope of investigations on employee well-being be expanded to include other domains (e.g., family, social; see Edwards & Rothbard, 2000; Zedeck, 1992), as well as the reciprocal relationship between work well-being and general well-being.

A recent conceptual model that can be applied to the study of employee well-being and that addresses several of the limitations noted above is Affective Events Theory (AET; Weiss & Cropanzano, 1996). In summary, AET proposes that various events at work have immediate affective consequences (i.e., they are *affective events*) in that they generate emotional reactions and changes in momentary affective states (Weiss & Cropanzano, 1996). In turn, emotions and momentary affect not only influence employees' behaviour (their "affect-driven behaviour" such as citizenship behaviours; Weiss & Cropanzano, 1996) but also lead to the formation of relatively stable work attitudes. Importantly, AET "draws much needed attention to streams of events that can unfold in workplaces" (Brief & Weiss, 2002, p. 284) and thus provides the basis for modelling constructs important for employees' well-being at the intraindividual level.

INTRAINDIVIDUAL EFFECTS ON TIME-SAMPLED SATISFACTION AND WELL-BEING

AET (Weiss & Cropanzano, 1996) incorporates the aspect of time in its tenets; however, in contrast to its focus on temporal fluctuations in affect and discrete behaviour, AET does not recognize that job satisfaction itself can fluctuate over time. In consequence, studies aimed at testing AET typically adopt experience sampling methodology (ESM; which we will discuss in more detail later) designs for measuring affect (e.g., Weiss, Nicholas, & Daus, 1999) or task performance (Fisher, 2002a), but measure job satisfaction with general one-time surveys. This leads researchers to test the affective experience–job satisfaction link at the interindividual level (i.e., examine the effect of between-individual differences in averaged experience-sampled affect on individual differences in job satisfaction).

It should be noted that a few recent between-subjects studies have employed longitudinal designs examining the temporal sequence of job satisfaction over time (e.g., Boswell, Boudreau, & Tichy, 2005), and the direction and nature of the causal sequence of the associations between job satisfaction and other subjective well-being indicators such as life satisfaction (e.g., Heller, Judge, & Watson, 2002; Judge & Watanabe, 1993). However, this research examined these trends based on a small number of waves and relatively long intervals such as 1 year, coupled with the traditional focus on interindividual processes and a trait-like conceptualization of job satisfaction. Consequently, we believe this research is limited in

its ability to explicate the dynamic, short-term intraindividual processing that lies at the heart of the experience of well-being at work.

Similarly, Ilies and Judge (2002) argued that treating job satisfaction as a stable construct limits researchers' ability to examine psychological processes that lead to the formation of job satisfaction at work. Furthermore, Ilies and Judge maintained that research designs and assessment methodologies have been major limiting factors in the study of job satisfaction:

A major reason for the lack of insight into mechanisms that influence people's job satisfaction is the typical research design employed in organizational research. Traditional cross-sectional, between-subjects designs assume that constructs are stable over time and that variations around the average level of a variable are randomly distributed across occasions as transient errors. This approach ignores the distinct possibility that much of the variation in job satisfaction across time is not stochastic error, but corresponds to substantive changes in feelings related to the job. (p. 1120)

To address this issue, Ilies and Judge (2002) proposed that job satisfaction should be measured with a state approach and contended that focusing on processes that explain intraindividual variations in job satisfaction has the potential to advance the literature on job satisfaction. Indeed, recent empirical results suggest that up to a third of the total variance in job satisfaction is due to intraindividual variations in discrete job satisfaction (Heller & Watson, 2005; Ilies & Judge, 2002; Judge & Ilies, 2004). Ilies and Judge found that job satisfaction varied substantially across time and that mood and job satisfaction exhibited a dynamic intraindividual relationship across time. In a follow-up study, Judge and Ilies (2004) replicated the intraindividual effects of affect on job satisfaction and found that these intraindividual effects dissipate rather quickly with the passage of time. Finally, Heller and Watson (2005) and Ilies, Scott, and Judge (2006) also found important fluctuations in experience-sampled job satisfaction across time.

We believe that an important contribution to the literature on employee well-being is to extend AET to include psychological processes explaining intraindividual fluctuations in job satisfaction and processes that link employees' work experiences, feelings, and behaviour to nonwork experiences or feelings that contribute to or represent their well-being. In our view, this theoretical extension is important for the general literature on well-being because it opens new and exciting avenues for (a) examining intraindividual processes leading to satisfaction and well-being, (b) investigating hedonic spillover across work and nonwork domains, and (c) integrating these intraindividual processes with theories of personality traits by

examining individual differences in intraindividual variations of well-being constructs, and individual differences in the magnitudes of intraindividual relationships or domain spillover effects.

HEDONIC SPILLOVER EFFECTS ACROSS LIFE DOMAINS

Studying intraindividual fluctuations in experiences related to employee well-being by using ESM designs that probe into employees' different life domains can enable researchers to examine spillover effects in real-time, rather than relying on cross-sectional designs that can, at best, suggest inferences about how affective spillover mechanisms may work. Edwards and Rothbard (2000) define spillover as "the effects of work and family on one another that generate similarities between the two domains" and note that such similarities are "described in terms of work and family *affect* (i.e., mood and satisfaction), *values* (i.e., the importance ascribed to work and family pursuits), *skills*, and overt *behaviors*" (p. 180, italics in original). Because mood and, in our view, job satisfaction reflect momentary experiences and evaluations, logically, affective spillover should be studied at the intraindividual level. Such intraindividual analysis of affective spillover would inform whether employees are in more positive moods at home following workdays that were rewarding in terms of positive affect, compared to days when they experienced low positive affect at work. In contrast, between-individual analyses—which characterize most previous research on work–family spillover (Judge & Ilies, 2004)—can only tell whether those who are typically in a better mood at work, also generally experience more positive moods at home, and such between-individual relationship can be due to dispositional effects (Heller et al., 2002) or response tendencies, rather than true affective spillover processes.

To address the problem of relying on cross-sectional data for studying spillover effects, Judge and Ilies (2004) investigated spillover across work and family domains with an ESM design. These authors found that employees' affective experiences at work predicted their affective states reported later from home across days. This finding documents the mood spillover effect at the intraindividual level. Heller and Watson (2005) took the contribution of Judge and Ilies (2004) one step further by uncovering a concurrent and prospective intraindividual relationship between job satisfaction and marital satisfaction, thus demonstrating that focusing solely at the between-subject level might falsely suggest marital and job satisfaction are unrelated (see also Heller et al., 2004).

Another stream of research dealing with employee daily well-being includes research on recovery from work (e.g., Sonnentag, 2003) and on the consequences of work experiences on behaviour in the family domain.

Within-individual research on recovery from work has shown that work hours predicted psychological detachment from work (being distracted from job-related thoughts) across days and that psychological detachment was positively related to well-being (Sonnentag & Bayer, 2005). In addition, participating in social activities, which are thought to generate positive affect (Watson, Clark, McIntyre, & Hamaker, 1992), has been found to enhance end-of-day affective well-being in intraindividual research on employees (Sonnentag, 2003). However, recent intraindividual research on work–family conflict has shown that high work demands increase the experience of conflict, which, in turn, further influences (negatively) social behaviours that might have recovery potential (see Ilies, Schwind, et al., in press). Nevertheless, these findings suggest the importance of investigating intraindividual fluctuations in processes linking work to nonwork domains.

A DYNAMIC FRAMEWORK FOR STUDYING EMPLOYEE WELL-BEING

In this article, we propose a framework for studying well-being that is aimed at describing intraindividual fluctuations in experienced states relevant to general psychological well-being (e.g., affect, Weiss et al., 1999; perceptions of goal progress, Alliger & Williams, 1993; job satisfaction, Ilies & Judge, 2002) and that considers interindividual differences in the patterns of these fluctuations and their implications for psychological well-being. In developing this framework, we draw on and extend the theory on affective implications of work events (AET; Weiss & Cropanzano, 1996) as well as follow Mischel and Shoda's (1998) recommendations for integrating the intraindividual processing and individual differences approaches to personality. We present this conceptual framework in Figure 1.

In the proposed model, we portray the intraindividual processes that unfold across time as the sequential relations between three classes of constructs: events at work, experiences at work, and experiences off work. Following AET, streams of experiences at work are influenced by work events in that these experiences largely reflect employee's goal directed activities and their reactions to events such as receiving performance feedback or engaging in social interactions. To extend this model beyond the work domain, we argue that states experienced at work influence off-work experiences through spillover phenomena, such as those described by Judge and Ilies (2004) in their study on the influence of affect and satisfaction experienced at work on affect experienced at home. Off-work experiences will also influence both work events (through choice; e.g., one may choose not to engage in social interactions at work, following negative social or marital experiences during the previous evening) and affective experiences at work via spillover.

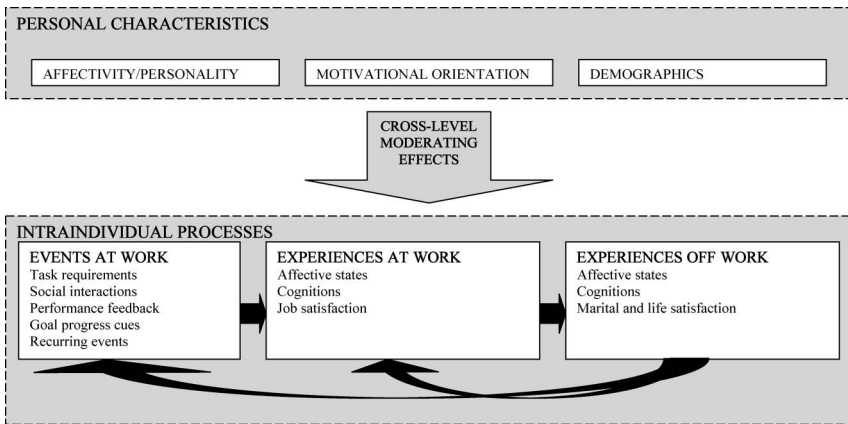


Figure 1. Dynamic well-being model. In the interest of parsimony, direct dispositional effects on events and experiences are not illustrated in the model.

Of note is the fact that the intraindividual nature of the model accounts for discrete situational influences on constructs important for employees' well-being. However, in developing the model, we also considered the link between employees' dispositional characteristics and intraindividual processing. Dispositional influences on intraindividual processes are manifested through moderating effects on the work events–work experiences intraindividual relationship (e.g., individuals' personality influences how they react to events across time, Gable, Reis, & Elliot, 2000; employees' motivational orientation should influence how they react affectively to performance feedback, Ilgen & Davis, 2000), and on the magnitudes of the spillover processes from work to home and home to work (e.g., the moderating effect of affectivity; Judge & Ilies, 2004).

Cross-sectional studies on the antecedents of satisfaction and well-being reflect a dispositional view of well-being, whereas, understanding intraindividual variability in affect, satisfaction, or behaviour across situations requires modelling intraindividual relationships across time (Mischel & Shoda, 1998). Like Shoda, Mischel, and Wright (1994) and Mischel and Shoda (1998), we believe that investigations aimed at explaining and predicting human functioning and behaviour should study both processing across situations in addition to individual differences in characteristic patterns of processing and behaviour. Furthermore, we believe such integrative approaches have great potential for advancing knowledge about how people experience events, how they feel, think, and behave at work. At a more specific level, in this article we are concerned with employees' affective experiences at work and with their job satisfaction. In this respect,

our goal is to extend AET to integrate intraindividual processes predicting affect and satisfaction with interindividual differences in patterns of intraindividual variations and relationships.

With respect to behaviour, Shoda et al. (1994, p. 674) argued that researchers' neglect of intraindividual processes "reflects not a lack of interest but an absence of appropriate methods and theory for studying individual functioning in ways that are objective and scientific rather than intuitive and clinical". Similarly, we believe that progress in conceptualizing intraindividual functioning and well-being has been severely limited by the lack of availability of methods for studying how individuals function in their ecological environments. However, following the shift in focus to real-time events and affect induced by AET, recently adopted methods for collecting and modelling repeated-measures data enable organizational scholars to study interindividual differences and intraindividual processing within an integrated framework, an issue to which we turn next.

Following the recommendations for measuring real-time affect included in AET, empirical studies using experience-sampling methodology (ESM; Bolger, Davis, & Rafaeli, 2003; Csikszentmihalyi & Hunter, 2003; Wheeler & Reiss, 1991) have started to appear in the organizational literature. In an ESM work-based study, employees are required to report their momentary affective experiences or subjective feeling states from work, using diaries (e.g., Weiss et al., 1999), desktop computers connected to the Internet (e.g., Ilies & Judge, 2002), or hand-held electronic devices (e.g., Foster Bigazzi, 2003). In a typical ESM study, multiple measurements of time-sampled constructs are provided across several days or weeks. This real-time measurement approach eliminates the process of recall or summarization, which can be problematic due to selective memory processes (Alliger & Williams, 1993; Larson & Csikszentmihalyi, 1983). Experience sampling measurement occurs in the natural environment where events and affective experiences unfold (e.g., at work), which makes this approach particularly well suited for the study of immediate affective reactions to specific work events.

In sum, ESM enables researchers to capture work events and experiences, feelings, and behaviour as they unfold in the work environment. Furthermore, ESM designs allow for measurements outside of the workplace, which is relevant for the present model that extends AET to nonwork domains. As mentioned, ESM is ideal for studying spillover effects across work and other domains. In order to study off-work experiences such as those presented in our model (e.g., affective states, cognitions, marital and life satisfaction), an ESM study could incorporate nightly surveys that are completed at home using diaries or hand-held devices.

Experience sampling designs enable researchers to understand psychological variables at the time and level at which they are manifested by

modelling dynamic processes (see Ilies & Judge, 2002). With respect to employee well-being, ESM designs can enhance our understanding of the antecedents of general well-being by investigating processes that influence real-time well-being variables; therefore, enabling researchers to capture the influence of transitory situational factors (in contrast to cross-sectional designs, which can only capture the effects of stable situational characteristics). Furthermore, as Hormuth (1986) notes, ESM allows for the study of the interaction between person and situation variables without some of the limitations inherent in traditional study designs (e.g., the aggregation of situational factors across time, recall biases, and so forth).

In a seminal article illustrating the use of ESM for testing AET predictions, Weiss et al. (1999) showed that average experience-sampled pleasant mood predicted job satisfaction (independently of beliefs about the job), and also uncovered cyclic daily variations in employees' mood. The work of Weiss et al. started a temporal revolution in the assessment of affective experiences at work, in that organizational scholars have increasingly focused on the assessment of real-time events and affective experiences following the Weiss et al. study (e.g., Fisher, 2002a, 2002b; Fuller et al., 2003; Heller & Watson, 2005; Ilies & Judge, 2002; Judge & Ilies, 2004). This recent research trend has influenced the adoption of methods for modelling time-series data generated by ESM assessments.

A statistical modelling technique that can be used to model intraindividual variations both as a function of time and as a function of other time-sampled constructs entails modelling data at two different levels of analysis via hierarchical linear modelling (HLM; Bryk & Raudenbush, 1992). The HLM approach is a two-stage iterative strategy that allows (a) modelling change patterns in scores on a specific construct (by regressing these scores on time at Level 1) or intraindividual relationships between time-sampled variables (by regressing individual time-sampled scores on the criterion on time-sampled scores on the predictors) at Level 1, and (b) identifying between-individual differences in patterns of temporal variation or in the magnitudes of individuals' characteristic intraindividual relationships, at Level 2. However, HLM modelling assumes that the Level 1 data points are *not* serially dependent (a specific observation does not depend on the preceding one) and time series observations typically violate this assumption. In order to account for the serial dependency in the data, researchers can include the lagged criterion variable as a Level 1 predictor. Ilies and Judge (2002), for example, regressed job satisfaction at time t on mood at time t , while controlling for job satisfaction at time $t - 1$, to estimate the intraindividual relationship between mood and job satisfaction. (The most recent version of HLM includes a feature for modelling autocorrelated within-subject data—Proc Mixed allows for the specification of a variety of autocorrelated error structures for within individual data; SAS Institute, 1999.)

Consider a hypothetical study examining the role of work overload and affective experiences at work in influencing job satisfaction. HLM modelling allows one to investigate whether employees experience lower job satisfaction on days when they experience high workloads, as compared to days when their workload is lower, and whether this effect is explained by affect (perhaps negative affect). To answer these questions, one would first regress job satisfaction on workload across time at Level 1, using the momentary scores provided by all individuals. As many authors have explained (e.g., Ilies et al., 2006; Judge & Ilies, 2004; Sonnentag & Bayer, 2005), for the model estimates to strictly reflect intraindividual processes, each individual's momentary scores on the predictor variables have to be centred relative to the individual's mean score (i.e., subtract the mean from each time-sampled observation). Such centring essentially eliminates all the between-individual variance in the predictor scores (all individuals will have means of zero) and, in essence, the analysis is similar to a regression analysis conducted on a data set that includes all the individuals' data for each day (stacked vertically), with the workload variable containing the departures from each individual's mean workload. Therefore, centring controls for any effects that chronic differences in workload may have on job satisfaction. In this scenario, the Level 1 analyses estimate an intercept and beta values for each individual in the sample, and the Level 2 estimates are equivalent to a weighted average of individuals' intercept and beta values.

This first model would test whether workload influences satisfaction for the average employee in the sample (i.e., testing whether the pooled regression coefficient for predicting job satisfaction with work overload, β_{10} in Equation 3, below, is significantly different than zero). The HLM equations for this sample model are shown next.

Two-level model equations

$$\text{Level 1: } \text{JOB_SAT}_{ij} = \pi_{0j} + \pi_{1j}(\text{W_LOAD}_{ij} - \overline{\text{W_LOAD}}_j) + e_{ij} \quad (1)$$

$$\text{Level 2: } \pi_{0j} = \beta_{00} + r_{0j} \quad (2)$$

$$\pi_{1j} = \beta_{10} + r_{1j} \quad (3)$$

Mixed level equation

$$\begin{aligned} \text{JOB_SAT}_{ij} = & \beta_{00} + \beta_{10}(\text{W_LOAD}_{ij} - \overline{\text{W_LOAD}}_j) \\ & + r_{0j} + r_{1j}(\text{W_LOAD}_{ij} - \overline{\text{W_LOAD}}_j) + e_{ij} \end{aligned} \quad (4)$$

Where JOB_SAT_{ij} is the score on job satisfaction provided by participant j at time t ; W_LOAD_{ij} is the workload reported by participant j at time t ; and $\overline{W_LOAD}_j$ is participant j 's average workload score.

Second, to test whether negative affect mediates the effect of workload on job satisfaction across days (i.e., at the intraindividual level), the researcher should introduce negative affect as a Level 1 predictor, in addition to the workload variable, and examine whether the effect of workload, as indicated in the pooled (Level 2) estimate of the regression coefficient (β_{10} , in Equation 7 below), disappears or is substantially diminished (compared to the value of β_{10} estimated in the previous model). Of course, this scenario assumes that negative affect significantly predicts job satisfaction, and that workload significantly predicts negative affect, which are conditions for mediation (for a discussion regarding mediation tests in multilevel modeling, see MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). The equations for this second model are shown below:

Two-level model equations

$$\begin{aligned} \text{Level 1: } JOB_SAT_{ij} = & \pi_{0j} + \pi_{1j}(W_LOAD_{ij} - \overline{W_LOAD}_j) \\ & + \pi_{2j}(NEG_AFF_{ij} - \overline{NEG_AFF}_j) + e_{ij} \end{aligned} \quad (5)$$

$$\text{Level 2: } \pi_{0j} = \beta_{00} + r_{0j} \quad (6)$$

$$\pi_{1j} = \beta_{10} + r_{1j} \quad (7)$$

$$\pi_{2j} = \beta_{20} + r_{2j} \quad (8)$$

Mixed model equation

$$\begin{aligned} JOB_SAT_{ij} = & \beta_{00} + \beta_{10}(W_LOAD_{ij} - \overline{W_LOAD}_j) \\ & + \beta_{20}(NEG_AFF_{ij} - \overline{NEG_AFF}_j) \\ & + r_{0j} + r_{1j}(W_LOAD_{ij} - \overline{W_LOAD}_j) \\ & + r_{2j}(NEG_AFF_{ij} - \overline{NEG_AFF}_j) + e_{ij} \end{aligned} \quad (9)$$

Where JOB_SAT_{ij} is the score on job satisfaction provided by participant j at time t ; W_LOAD_{ij} is the workload reported by participant j at time t ; $\overline{W_LOAD}_j$ is participant j 's average workload score; NEG_AFF_{ij} is the negative affect score reported by participant j at time t ; and $\overline{NEG_AFF}_j$ is participant j 's average negative affect.

Estimating parameters describing intraindividual relationships based on all individuals in the sample (i.e., with the Level 2 regression estimates when no substantive predictors are included at Level 2) is important for elucidating how dynamic processes work for the prototypical individual as described by the sampling frame. Considering both intra- and interindividual variability in an integrated two-level framework, like the hypothetical study describe above, also allows one to examine whether interindividual differences in parameters of intraindividual processing (e.g., magnitude of intraindividual relationships among time-sampled constructs) exist, and whether these differences can be predicted with traits. In HLM modelling, cross-level moderating effects are tested by examining whether the Level 2 moderator influences the Level 1 regression parameters. For example, to test whether those who score higher on Neuroticism, in the hypothetical study described above, display a stronger (positive) relationship between work overload and negative affect, one should regress negative affect on workload (centred at the individuals' means) at Level 1, and then regress the (Level 1) intercepts and the betas on Neuroticism scores at Level 2. Sample equations are shown below.

Two-level model equations

$$\text{Level 1: } NEG_AFF_{ij} = \pi_{0j} + \pi_{1j}(W_LOAD_{ij} - \overline{W_LOAD}_j) + e_{ij} \quad (10)$$

$$\text{Level 2: } \pi_{0j} = \beta_{00} + \beta_{01}(NEUROT_j - \overline{NEUROT.}) + r_{0j} \quad (11)$$

$$\pi_{1j} = \beta_{10} + \beta_{11}(NEUROT_j - \overline{NEUROT.}) + r_{1j} \quad (12)$$

Mixed level equation

$$\begin{aligned} NEG_AFF_{ij} = & \beta_{00} + \beta_{01}(NEUROT_j - \overline{NEUROT.}) \\ & + \beta_{10}(W_LOAD_{ij} - \overline{W_LOAD}_j) \\ & + \beta_{11}(NEUROT_j - \overline{NEUROT.}) \\ & \times (W_LOAD_{ij} - \overline{W_LOAD}_j) \\ & + r_{0j} + r_{1j}(W_LOAD_{ij} - \overline{W_LOAD}_j) + e_{ij} \quad (13) \end{aligned}$$

Where NEG_AFF_{ij} is the negative affect score reported by participant j at time t ; W_LOAD_{ij} is the workload reported by participant j at time t ; $\overline{W_LOAD}_j$ is participant j 's average workload score; $NEUROT_j$ is

participant j 's Neuroticism score; and \overline{NEUROT} is the average Neuroticism score across participants in the sample.

As described above, designs that allow for measuring momentary constructs such as affect and well-being (i.e., ESM designs) and statistical modelling techniques that are able to model intraindividual variations, such as HLM, hold important implications for organizational scholarship. These methods should be adopted in order to test dynamic models involving relevant workplace constructs (e.g., employee well-being) over time and spillover effects that occur across work and nonwork domains.

CONTRIBUTIONS AND CONCLUSION

This article has important implications for general theoretical frameworks that conceptualize organizational behaviour constructs, as well as for research on employee well-being that takes advantage of the novel methodologies reviewed herein. That is, at the broadest level, we hope that this article will contribute to the organizational literature by influencing scholars to examine the unfolding streams of work events, momentary experiences, feelings, evaluations, and episodic behaviours as dynamically interrelated constructs across time, and uncover individual differences in the parameters of intraindividual relationships. We believe this approach holds great promise for understanding how discrete experiences influence how individuals feel, what they think, and how they behave at work. For instance, dynamic and integrative designs could be used to study such constructs as voluntary behaviours, job performance, and work–family conflict.

The model we developed here is not meant to provide a comprehensive description of all the factors that influence well-being or of the processes through which their influence is realized. Thus, this model can be further developed. Below, we provide two examples of areas in which this dynamic model of employee well-being could be further expanded. In the spirit of our model, we would like to note that we feel these questions would best be addressed via dynamic designs that enable the simultaneous modelling of intra- and interindividual variation. First, we recommend that organizational scholars investigate and develop inventories to assess work events. That is, a taxonomy of work events and an understanding of the psychological features of work events (i.e., beyond positive vs. negative valence) that determine their influence on well-being is very much needed. Second, research should extend our model of intraindividual spillover to examine interindividual crossover processes. Processes of emotional contagion between family members (e.g., from an employee to his/her spouse), between team members (Ilies, Wagner, & Morgeson, in press), and between leaders and followers (see Bono & Ilies, 2006; Sy, Côté, & Saavedra, 2005) also represent deserving areas of future research.

Empirical studies based on our model should also suggest mechanisms for enhancing employee well-being in the workplace. That is, research based on our model may indicate which individuals are most reactive affectively to positive or negative events (e.g., salary raises, performance appraisals, injustice perceptions). For example, we expect employees with lower emotional stability to be more reactive to negative events at work than those who are emotionally stable; whereas, we would expect extraverted employees to react most strongly to positive events compared to more introverted peers. Such information could be used by managers in designing training and development programmes or incorporated into feedback delivery, performance management, and compensation systems.

Herein, we review theory and research on topics related to employee well-being and contend that static construct and process conceptualizations, cross-sectional research designs, data collection based on retrospective ratings, and methods of analysis based on modelling interindividual differences have limited progress in understanding what situational and personal factors are important for employee well-being. In addition, we looked at how situation- and person-based factors interact in influencing intraindividual processes that lead to satisfaction and well-being.

Driven by recent methodological developments, a new and dynamic perspective on employee well-being has started to emerge. This new perspective involves modelling intraindividual functioning at and, as we suggest, off work by sampling individuals' feelings, thoughts, attitudes and behaviours in real-time in their natural environment, and examining individual differences in the patterns of experience and functioning across time. Illustrative of this fresh approach to conceptualizing organizational behaviour, we have described a dynamic model of employee well-being. This model reflects recent advances in understanding employee satisfaction and well-being, introduces several avenues for theoretical development and, as we have shown, has important implications for future organizational research and practice.

REFERENCES

- Alliger, G. M., & Williams, K. J. (1993). Using signal-contingent experience sampling methodology to study work in the field: A discussion and illustration examining task perceptions and mood. *Personnel Psychology, 46*, 525–549.
- Bolger, N., Davis, A., & Rafaeli, E. (2003). Diary methods: Capturing life as it is lived. *Annual Review of Psychology, 54*, 403–425.
- Bono, J. E., & Ilies, R. (2006). Charisma, positive emotions, and mood contagion. *Leadership Quarterly, 17*, 317–334.
- Boswell, W. R., Boudreau, J. W., & Tichy, J. (2005). The relationship between employee job change and job satisfaction: The honeymoon-hangover effect. *Journal of Applied Psychology, 90*, 882–892.

- Brief, A. P., & Weiss, H. (2002). Organizational behavior: Affect in the workplace. *Annual Review of Psychology*, *53*, 279–307.
- Bryk, A. S., & Raudenbush, S. W. (1992). *Hierarchical linear models: Applications and data analysis methods*. Thousand Oaks, CA: Sage.
- Csikszentmihalyi, M., & Hunter, J. (2003). Happiness in everyday life: The uses of experience sampling. *Journal of Happiness Studies*, *4*, 185–199.
- Diener, E., Oishi, S., & Lucas, R. E. (2003). Personality, culture, and subjective well-being: Emotional and cognitive evaluations of life. *Annual Review of Psychology*, *54*, 403–425.
- Edwards, J. R., & Rothbard, N. P. (2000). Mechanisms linking work and family: Specifying the relationships between work and family constructs. *Academy of Management Review*, *25*, 178–199.
- Fisher, C. D. (2002a). Antecedents and consequences of real-time affective reactions at work. *Motivation and Emotion*, *26*, 3–30.
- Fisher, C. D. (2002b). Real time affect at work: A neglected phenomenon in organisational behavior. *Australian Journal of Management*, *27*, 1–10.
- Foster Bigazzi, J. (2003). *Child care disruptions and working mothers: An experience sampling method approach*. Unpublished dissertation. Rice University, Houston, TX.
- Fried, Y., & Ferris, G. R. (1987). The validity of the job characteristics model: A review and meta-analysis. *Personnel Psychology*, *40*, 287–322.
- Fuller, J. A., Stanton, J. M., Fisher-McAuley, G., Spitzmüller, C., Russell, S. S., & Smith, P. S. (2003). A lengthy look at the daily grind: Time series analysis of events, mood, stress, and satisfaction. *Journal of Applied Psychology*, *88*, 1019–1033.
- Gable, S. L., Reis, H. T., & Elliot, A. (2000). Behavioral activation and inhibition in everyday life. *Journal of Personality and Social Psychology*, *78*, 1135–1149.
- Heller, D., Judge, T. A., & Watson, D. (2002). The confounding role of personality and trait affectivity in the relationship between job and life satisfaction. *Journal of Organizational Behavior*, *23*, 815–835.
- Heller, D., & Watson, D. (2005). The dynamic spillover of satisfaction between work and marriage: The role of time and mood. *Journal of Applied Psychology*, *90*, 1273–1279.
- Heller, D., Watson, D., & Ilies, R. (2004). The role of person versus situation in life satisfaction: A critical examination. *Psychological Bulletin*, *130*, 574–600.
- Heller, D., Watson, D., & Ilies, R. (2006). The dynamic process of life satisfaction. *Journal of Personality*, *74*, 1421–1450.
- Hormuth, S. E. (1986). The sampling of experiences in situ. *Journal of Personality*, *54*, 262–293.
- Ilgen, D. R., & Davis, C. A. (2000). Bearing bad news: Reactions to negative performance feedback. *Applied Psychology: An International Review*, *49*, 550–565.
- Ilies, R., & Judge, T. A. (2002). Understanding the dynamic relationships among personality, mood, and job satisfaction: A field experience-sampling study. *Organizational Behavior and Human Decision Processes*, *89*, 1119–1139.
- Ilies, R., Schwind, K., Wagner, D. T., Johnson, M., DeRue, D. S., & Ilgen, D. R. (in press). When can employees have a family life? The effects of daily workload and affect on work–family conflict and social activities at home. *Journal of Applied Psychology*.
- Ilies, R., Scott, B. A., & Judge, T. A. (2006). The interactive effects of personal traits and experienced states on intraindividual patterns of citizenship behavior. *Academy of Management Journal*, *49*, 561–575.
- Ilies, R., Wagner, D. T., & Morgeson, F. P. (in press). Affective linkages in teams: Individual differences in contagion susceptibility and individualism/collectivism. *Journal of Applied Psychology*.
- Judge, T. A., Heller, D., & Mount, M. K. (2002). Five-factor model of personality and job satisfaction. *Journal of Applied Psychology*, *87*, 530–541.

- Judge, T. A., & Ilies, R. (2004). Affect and job satisfaction: A study of their relationship at work and at home. *Journal of Applied Psychology, 89*, 661–673.
- Judge, T. A., & Watanabe, S. (1993). Another look at the job satisfaction–life satisfaction relationship. *Journal of Applied Psychology, 78*, 939–948.
- Kahneman, D., Diener, E., & Schwarz, N. (1999). *Well-being: The foundations of hedonic psychology*. New York: Russell Sage Foundation.
- Larson, R. S., & Csikszentmihalyi, M. (1983). The experience sampling method. In H. R. Reis (Ed.), *New directions for methodology of social and behavioral science: Naturalistic approaches to studying social interaction* (pp. 41–46). San Francisco: Jossey-Bass.
- Locke, E. A. (1976). The nature and causes of job satisfaction. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 1297–1350). Chicago: Rand McNally.
- MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test the significance of the mediated effect. *Psychological Methods, 7*, 83–104.
- Mischel, W., & Shoda, Y. (1998). Reconciling processing dynamics and personality dispositions. *Annual Review of Psychology, 49*, 229–258.
- Rothbard, N. P. (2001). Enriching or depleting? The dynamics of engagement in work and family roles. *Administrative Science Quarterly, 46*, 655–684.
- SAS Institute. (1999). *SAS/STAT user's guide, Version 7*. Cary, NC: Author.
- Shoda, Y., Mischel, W., & Wright, J. C. (1994). Intra-individual stability in the organization and patterning of behavior: Incorporating psychological situations into the idiographic analysis of personality. *Journal of Personality and Social Psychology, 67*, 674–687.
- Sonnentag, S. (2003). Recovery, work engagement, and proactive behavior: A new look at the interface between non-work and work. *Journal of Applied Psychology, 88*, 518–528.
- Sonnentag, S., & Bayer, U.-V. (2005). Switching off mentally: Predictors and consequences of psychological detachment from work during off-job time. *Journal of Occupational Health Psychology, 10*, 393–414.
- Staw, B. M., & Cohen-Charash, Y. (2005). The dispositional approach to job satisfaction: More than a mirage, but not yet an oasis. *Journal of Organizational Behavior, 26*, 59–78.
- Sy, T., Côté, S., & Saavedra, R. (2005). The contagious leader: Impact of the leader's mood on the mood of group members, group affective tone, and group processes. *Journal of Applied Psychology, 90*, 295–305.
- Warr, P. (1987). *Work, unemployment, and mental health*. Oxford, UK: Oxford University Press.
- Watson, D., Clark, L. A., McIntyre, C. W., & Hamaker, S. (1992). Affect, personality, and social activity. *Journal of Personality and Social Psychology, 63*, 1011–1025.
- Weiss, H. M., & Cropanzano, R. (1996). Affective events theory: A theoretical discussion of the structure, causes, and consequences of affective experiences at work. *Research in Organizational Behavior, 18*, 1–74.
- Weiss, H. M., Nicholas, J. P., & Daus, C. S. (1999). An examination of the joint effects of affective experiences and job beliefs on job satisfaction and variations in affective experiences over time. *Organizational Behavior and Human Decision Processes, 78*, 1–24.
- Wheeler, L., & Reis, H. T. (1991). Self-recording of everyday life events: Origins, types, and uses. *Journal of Personality, 59*, 339–354.
- Zedeck, S. (Ed.). (1992). *Work, families, and organizations*. San Francisco: Jossey-Bass.

Original manuscript received July 2006

Revised manuscript received March 2007

First published online 18 July 2007