

## WAKING UP ON THE RIGHT OR WRONG SIDE OF THE BED: START-OF-WORKDAY MOOD, WORK EVENTS, EMPLOYEE AFFECT, AND PERFORMANCE

NANCY P. ROTHBARD  
University of Pennsylvania

STEFFANIE L. WILK  
The Ohio State University

**We examine how start-of-workday mood serves as an “affective prime” that relates to how employees see work events, how they feel subsequent to events, and how this felt affect relates to objective performance. Using experience sampling and both archival and coded performance, we tested these relationships in a call center. We found that start-of-workday mood relates to employee perceptions of customer affective display and employee affect subsequent to events (i.e., calls). Positive affect subsequent to events relates to coded performance quality, whereas negative affect subsequent to events relates to productivity. We find evidence that affect subsequent to events is a mediator.**

Employees are rarely able to check their feelings at the door to their workplace, nor are they unaffected by the events they encounter during the workday. These two factors, start-of-workday mood and work events, may both relate to how employees feel and ultimately perform at work. Mood is defined as a shorter-term, diluted response to general environmental stimuli; that is, mood is typically not associated with one particular stimulus (Tellegen, 1985). However, unlike disposition, mood varies over time and often within and between days. Each day, employees may bring different moods to work, and the moods they start their day with may frame the way they interpret work experiences and how they feel subsequent to such work experiences. A person who starts his or her day in a “good mood” may experience a work event differently

than when he or she is in a “bad mood.” Moreover, start-of-workday mood and the way employees feel after encountering work events may have an important relationship with daily work performance.

Our study is grounded in research on affect in organizations, which has been steadily growing in recent years (Barsade, Brief, & Spataro, 2003). Indeed the “affective revolution” in organizational scholarship has highlighted the importance of affective processes for organizational behavior and, in particular, the importance of focusing on affective processes in daily experience (Barsade et al., 2003). Conceptual frameworks such as affective events theory also emphasize the importance of focusing on within-person affective experiences (Beal, Weiss, Barros, & MacDermid, 2005; Weiss & Beal, 2005; Weiss & Cropanzano, 1996).

According to affective events theory, work events lead to affective reactions, which in turn influence both work attitudes and affect-driven behaviors such as performance (Weiss & Cropanzano, 1996). In the present study, we contribute to the growing literature on affective events (e.g., Dalal, Lam, Weiss, Welch, & Hulin, 2009; Fisher & Noble, 2004; Niklas & Dormann, 2005; Totterdell & Holman, 2003; Weiss & Cropanzano, 1996) by focusing on a new antecedent of affective experiences at work: start-of-workday mood. Integrating research on affect (Bower, 1981; Forgas, Bower, & Krantz, 1984) and start-of-day recovery experiences (e.g., Binnewies, Sonnentag, & Mojza, 2009; Sonnentag, 2003), we argue that start-of-workday mood may provide an affective frame (i.e., “affective priming”)

---

We thank Sigal Barsade, Emilio Castilla, Lorna Doucet, Noah Eisenkraft, Mauro Guillen, Katherine Klein, Mathis Schulte, Maurice Schweitzer, and Mark Zbaracki for their helpful comments on this article. We thank our editor, Debra Shapiro, and the three anonymous reviewers for their guidance throughout the review process. We thank Gina Dokko for her help in collecting the data. This study was funded through a number of sources. We thank the Financial Institutions Center, the Center for Human Resources, and the Reginald Jones Center at the Wharton School, University of Pennsylvania, and the Society for Industrial and Organizational Psychology for their generous support of this project.

*Editor's note:* The manuscript for this article was accepted for publication during the term of *AMJ's* previous editor, Duane Ireland.

that colors how people view and feel about daily workplace experiences. Examining both start-of-workday mood and experiences within the workday further contributes to affective events theory because it allows us to compare both more distal (start-of-workday mood) and proximal (perceptions of work experiences) factors that relate to employees' own affect at work. Lastly, we tie start-of-workday mood, daily work experiences (i.e., perceptions of customers), and how employees feel after these work experiences to quality- and productivity-based objective performance outcomes in a call center.

### THEORETICAL CONTRIBUTIONS

Past research and theorizing have primarily focused on mood during workdays (e.g., Totterdell & Holman, 2003; Mignonac & Herrbach, 2004; Wegge, van Dick, Fisher, West, & Dawson, 2006) and have not emphasized start-of-workday mood. Extending the affective events theory assumption that the perception of an affective event is driven primarily by that proximal event itself, we suggest that an employee's perceptions of events may be related to the affect a customer displays, but also may be related to the employee's start-of-workday mood. In addition, in keeping with affective events theory, which highlights the theoretical importance of the timing of the measurement of affective experiences (Weiss & Cropanzano, 1996), we contend that the timing of mood measurement may have theoretical importance. In particular, it is important to examine start-of-workday mood because it precedes employees' encounters with work events. Attention to start-of-workday mood allows us to more cleanly theorize about and examine the relationship between mood and affective work experiences, because some have argued that mood can be generated from many sources, including the residue of affective reactions to events (Morris, 1989).

We also contribute to the literature on affective experiences at work by examining how start-of-workday mood and employee affect subsequent to events are related to objective performance measures of quality and productivity. A substantial body of work has begun to accumulate that examines affective events and attitudes such as job satisfaction (Fisher, 2002; Fuller, Stanton, Fisher, Spitzmuller, Russell, & Smith, 2003; Mignonac & Herrbach, 2004; Wegge et al., 2006; Weiss, Nicholas, & Daus, 1999), organizational commitment (Fisher, 2002; Mignonac & Herrbach, 2004), emotional labor (Rupp & Spencer, 2006; Totterdell & Holman, 2003), and organizational citizenship behaviors (Miner, Glomb, & Hulin, 2005; Totterdell &

Holman, 2003). However, the work on the relationship between affective events and performance has been primarily theoretical (Beal et al., 2005; Weiss & Cropanzano, 1996) or has used self-report measures of performance (e.g., Dalal et al., 2009; Liu, Prati, Perrewe, & Brymer, 2010). To our knowledge, three studies have examined objective performance and daily affective experiences at work. Totterdell (1999, 2000) found a positive correlation between positive mood and objective performance in a sports context, but only for certain measures of performance. Miner and Glomb (2010) found a positive relationship between pleasant morning hedonic tone and faster call times in a call center environment, although they used morning hedonic tone only as a control variable in their analyses. We extend this literature by testing whether start-of-workday mood is related to objective performance through affect experienced at work, distinguishing the effects of both positive and negative affect, and testing both quality and productivity as outcomes.

By examining start-of-workday mood, we also contribute to a nascent literature on how people begin their workdays (e.g., Binnewies et al., 2009; Miner & Glomb, 2010; Sonnentag, 2003). Recent work in this area has emphasized recovery experiences and how they influence fatigue, job satisfaction, and workplace outcomes such as self-perceptions of performance and proactive behaviors through the mechanism of energy replenishment (e.g., Binnewies et al., 2009; Sonnentag, 2003; Sonnentag & Bayer, 2005; Sonnentag & Zijlstra, 2006). We contribute theoretically by suggesting that start-of-workday mood relates to workplace experiences through the mechanisms of cognitive appraisal and affective priming and by examining how start-of-workday experiences relate to objective performance measures of both quality and productivity.

### HYPOTHESES

Start-of-workday mood, unlike disposition, may vary distinctly from day to day (Ilies & Judge, 2002; Ilies, Scott, & Judge, 2006; Weiss et al., 1999). Williams, Suls, Alliger, Learner, and Wan suggested that the "start of a new day, may provide a psychological break that allows affect levels to change." (1991: 672). The variance in start-of-workday mood across days may have many sources, including nonwork challenges and opportunities, positive or negative family experiences before leaving for work, physiological factors such as sleep or somatic health or illness, and the commute in to work. Thus, employee mood change may be based on a variety of experiences that occur between leaving work one day and returning the next day.

The way a person starts the day may frame how she or he perceives and feels about work events. Indeed, start-of-workday mood may represent a daily “resetting” of affect (Marco & Suls, 1993; Williams et al., 1991). This resetting can be positive and enriching to work (Greenhaus & Powell, 2006; Rothbard, 2001), as it is in the case of recovery at home (Binnewies et al., 2009; Sonnentag & Bayer, 2005; Westman & Eden, 1997). Alternatively, resetting may lead to conflict and negative spillover of affect into the workplace (Edwards & Rothbard, 2000; Rothbard, 2001). Ashkanasy and Daus provided a vivid example of how people bring affect to the workplace in a way that can influence their workday: “Ruth is not really having a good day. It began even before she arrived at work. One of her children had awakened ill and needed to be taken care of” (2002: 76). They go on to describe how her mood worsens throughout the day. Likewise, in a study of string quartets, Murnighan and Conlon discussed how nonwork mood affects work experiences, quoting a second violinist: “Bad mood, trouble at home, and outside sources lead to arguments [at work]” (1991: 177).

Integrating research on what people bring with them to the workplace with research on affective priming suggests that start-of-workday mood may influence how an individual perceives and reacts to a stimulus such as a work event. Thus, we argue that start-of-workday mood may influence an individual’s cognitive appraisal of events later that day. Being in a positive mood may influence a person to interpret events and the environment more charitably (Bower, 1981; Carlson, Charlin, & Miller, 1988; Forgas et al., 1984; McCrae & Costa, 1991), an interpretation that leads to positive reinforcement and greater feelings of positivity. Conversely, negative start-of-workday mood may generate more negative appraisals and interpretations of daily events (Forgas, 1994, 2001; Forgas, Levinger, & Moylan, 1994; Judge & Ilies, 2004); such appraisals and interpretations lead to further feelings of negativity throughout the day. These positive and negative framing effects of mood suggest that start-of-workday mood may influence both perceptions of work events themselves and affect subsequent to events throughout a workday because it may lead employees to interpret ongoing daily work events more positively (Bower, 1981) or negatively (Judge & Ilies, 2004).

In this study of customer service employees, we define work events as customer service interactions (i.e., calls). This definition is consistent with past research that has demonstrated that work events can include interactions with customers (Basch & Fisher, 2000) and that, in a service environment,

the primary work event typically is the interaction between employee and customer (Rafaeli, 1989; Totterdell & Holman, 2003). Moreover, affective events theory suggests that the affective display associated with events is important to the way employees perceive affective events. In line with affective events theory and with theories of cognitive appraisal, we focus on employees’ perceptions of customer positive and negative affective displays during customer service calls. Further, in theorizing about the relationships among start-of-workday mood, perceptions of customers, and employee affect subsequent to customer interactions, we have followed the theoretical perspective that positive and negative affect are orthogonal rather than polar ends of a continuum (Watson & Tellegen, 1985). Positive and negative affect combine “hedonic tone” with “activation level” in such a way that intensity of affect is also captured. Moreover, this approach allows us to examine the separate relationships between both positive and negative affect and the outcomes. In sum, we posit that start-of-workday mood is related to how a person perceives work events (i.e., positive or negative customer affective displays), as well as his or her affect subsequent to those events (Weiss & Cropanzano, 1996).

*Hypothesis 1a. Higher start-of-workday positive mood is positively associated with perceptions of customer positive affective display.*

*Hypothesis 1b. Higher start-of-workday positive mood is positively associated with an employee’s own positive affect subsequent to work events.*

*Hypothesis 2a. Higher start-of-workday negative mood is positively associated with perceptions of customer negative affective display.*

*Hypothesis 2b. Higher start-of-workday negative mood is positively associated with an employee’s own negative affect subsequent to work events.*

## WORK EVENTS

Affective events theory highlights the role of workplace events as an important source of employee affect at work. In keeping with affective events theory, we focus on employee’s own affect subsequent to work events. Whereas some past research on customer service encounters has shown that customers are influenced by the affect of the service provider (Pugh, 2001), here we examine whether service providers are influenced by customers. Specifically, we ask whether an employee’s

perception of an event (i.e., a customer interaction) relates to how she/he feels after the event.

We propose two mechanisms by which perceptions of customer affective display might relate to an employee's own affect subsequent to the event: (1) emotional contagion and (2) cognitive appraisal. Emotional contagion is a process in which the emotional state of others influences a person's emotional state (Hatfield, Cacioppo, & Rapson, 1993): one person begins to synchronize facial expressions, voice tone, and body language with those of another person, which leads them to converge emotionally. Emotional contagion can occur between dyad members (Hsee, Hatfield, Carlson, & Chemtob, 1990) or in groups (Barsade, 2002; Totterdell, 2000; Totterdell, Kellett, Teuchmann, & Brinder, 1998). The second mechanism through which perceptions of customer affective display may relate to an employee's own affect subsequent to an event is cognitive appraisal. From this perspective, work events such as customer interactions are related to affect subsequent to the events, when they are appraised as facilitating or obstructing valued goals (Weiss & Cropanzano, 1996). Indeed, goal facilitation and obstruction have been found to result in positive and negative affect respectively (Henkel & Hinsz, 2004). The goal of customer service employees is to ensure a positive customer experience, as indicated by customer affective display (Barger & Grandey, 2006; Parasuraman, Zeithaml, & Berry, 1985; Wilk & Moynihan, 2005). Thus, perceptions of positive or negative customer affective display at the conclusion of a service encounter respectively signal facilitation or obstruction of the goal of providing high-quality service.

Whereas we theorized above about the importance of start-of-workday mood on perceptions of events and on affect subsequent to events, following prior research on affective events theory and affective processes in the workplace, here we suggest that perceptions of an affective event also independently relate to employee affect subsequent to the event. In sum, in view of our arguments about the mechanisms of emotional contagion and cognitive appraisal, we expect:

*Hypothesis 3a. Perceptions of customer positive affective display are positively associated with an employee's own positive affect subsequent to a work event.*

*Hypothesis 3b. Perceptions of customer negative affective display are positively associated with an employee's own negative affect subsequent to a work event.*

## Performance Outcomes

In developing performance hypotheses, we focused on productivity and quality, as these were considered equally important to employees' overall performance. In the organization that we studied, productivity was assessed as availability of employees to callers, the average speed with which they handled calls, and the degree to which they resolved calls on their own without escalating them by transferring them to others. These metrics are consistent with those reported in much past research on call centers that has assessed throughput and other measures of workplace efficiency (see Gans, Koole, & Mandelbaum, 2003). Quality of service was assessed as the verbal fluency of employees as they conversed with customers, because management believed this verbal exchange was an important aspect of how the image of the organization was conveyed to customers. Research showing that verbal fluency is associated with perceptions of competence and credibility supports this management view (Miller & Hewgill, 1964; O'Keefe, 2002; Sereno & Hawkins, 1967).

Research showing a positive relationship between positive affect and task performance (Lyubomirsky, King, & Diener, 2005) is relevant to the study of customer service work. For example, George (1991) found that positive affect led to better service-related behaviors. Theorists have argued that positive affect influences performance because it facilitates approach behavior (Cacioppo & Gardner, 1999), prompting people to actively engage with others in their environments. Actively engaging with others in a customer service environment involves being available to interact with customers and, when engaged with them, being actively involved in the customer exchange itself—resolving problems oneself rather than passing them off to others and presenting oneself to the customers in a fluent and competent way. Positive affect is also associated with greater cognitive availability and flexibility (Ashby, Isen, & Turken, 1999; Fredrickson, 1998, 2001) in that it is thought to broaden people's thought-action repertoires, widening the array of thoughts and actions that are recalled (Isen & Daubman, 1984) and leading to more integration of diverse materials (Isen, Rosenzweig, & Young, 1991). In an environment where employees regularly need to respond to a wide array of customer needs and to be fluent in customer interactions, we expect the approach tendencies, the flexibility, and the excess processing capacity of employees who experience positive affect to be beneficial for both productivity and quality of performance.

By contrast, negative affect is likely to be detrimental to productivity and quality of service in this context. In addition to how negative affect may lead workers to be less cognitively flexible because it induces narrowed thought-action sequences (Fredrickson, 2001; Staw, Sandelands, & Dutton, 1981), negative affect is inconsistent with the typical display rules for customer service-related work (e.g., Hochschild, 1983). Display rules are the expectations regarding the emotions that are expected and allowed to be expressed on the job (Ekman, 1992; Wilk & Moynihan, 2005). Employees who have negative affect need to expend effort to conceal it from customers, effort that employees with positive affect do not have to exert (e.g., acting [see Hochschild, 1983; Grandey, 2003]). Indeed, negative affect has been associated with greater need for emotion regulation, which consumes cognitive resources and as a result leads to decreased performance (Baumeister et al., 1998; Gross, 1998; Weiss & Cropanzano, 1996). Thus, more negative affect should be related to lower productivity and lower service quality because employees may use up cognitive resources through coping and emotion regulation. Such negative affect might also entail more rigid cognitive processing. Thus, in view of our arguments based on the theories of approach behavior, cognitive availability and flexibility, and emotion regulation, we expect:

*Hypothesis 4a. Employee positive affect subsequent to events during a workday is positively related to productivity and quality.*

*Hypothesis 4b. Employee negative affect subsequent to events during a workday is negatively related to productivity and quality.*

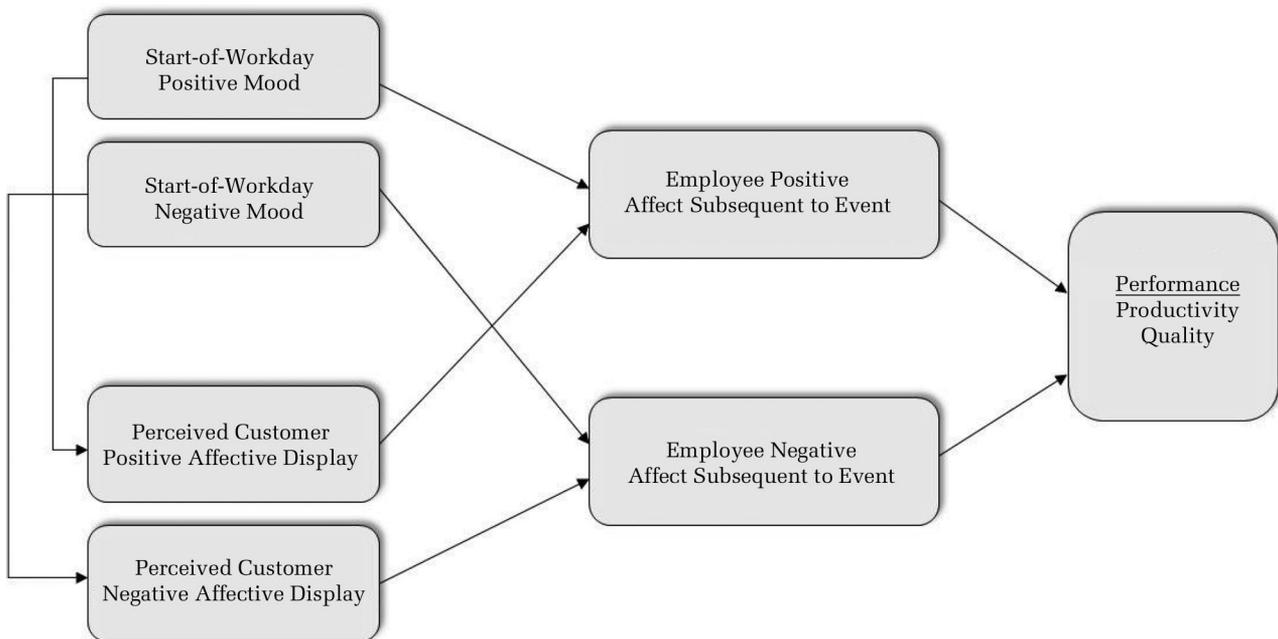
To this point, we have highlighted the importance of examining the influence of start-of-workday mood and perceptions of work events on employee affect subsequent to events. We have emphasized that affect felt subsequent to work events will be related to the productivity and quality of performance. We also expect that start-of-workday mood and perceptions of work events may relate to performance, through their relationships with employees' own affect subsequent to work events. Thus, we hypothesize the following mediated relationships:

*Hypothesis 5. Employee affect subsequent to events during a workday mediates the relationship between start-of-workday mood and productivity and quality.*

*Hypothesis 6. Employee affect subsequent to events during a workday mediates the relationship between perceptions of work events and productivity and quality.*

Figure 1 summarizes the relationships proposed in the hypotheses.

**FIGURE 1**  
**Theoretical Model**



## METHODS

### Sample and Procedures

Our data come from a large insurance company that uses call centers in two locations. Employees in the call centers include customer service representatives (CSRs), claims assistants, claims adjusters, and supervisory and managerial personnel. In the present study, we focused on CSRs, the “front line” of the service chain. They take a variety of calls, including “first notice of loss” calls and status inquiries regarding previously existing claims. We used experience sampling methodology to obtain multiple data points per day from the CSRs. Our sample, comprised of 29 out of a total of 35 full-time CSRs at the two call centers, represented a response rate of 83 percent. The number of respondents, although small, is similar to the numbers of participants reported in other studies using experience sampling methodology (e.g., Grandey, Tam, and Brauburger [2002], 36 participants; Ilies and Judge [2002], 27 participants; and Totterdell and Holman [2003], 18 participants). The organization encouraged participation, but it was completely voluntary. The CSRs in our sample were predominantly female (77%), and their average age was 38.9 years. We compared respondents and nonrespondents on demographic characteristics (e.g., race, sex, age) and on performance, finding no differences between those who participated in our surveys and those who chose not to participate (*t*-test *p*-values were all greater than 0.17).

Our pilot work included conducting interviews and focus groups, and shadowing employees to improve our understanding of the work context and inform our data collection. The data used in the study come from a number of different sources, including experience sampling surveys, archival sources, and coded calls. Over approximately three weeks, we used experience sampling surveys to measure employee mood at the start of each workday (the response rate was 62.3 percent; *n* = 220) and took two additional measurements of employee affect subsequent to call events during the workday (the response rate was 32.3 percent; *n* = 228). From these surveys, our participants generated 448 experience-sampling ratings out of a potential 1,079, for a 42 percent response rate overall. We calculated response rates on the basis of who was available on each day to take calls. The experience sampling surveys were administered via a “pop-up” that appeared on the CSRs’ computer terminals at various points in the day, providing them with a link for completing the survey online. The response rates we obtained were not as high as those of some other experience sampling

studies, likely because we did not pay participants for each response provided or use an “opt in” strategy wherein employees decide to be a part of the experience sampling initially and are thus more likely to respond. We collected location and productivity data through archival sources compiled by the organization. Additionally, we obtained a sample of taped calls, some of which could be matched to our experience sampling data. From these data, we were able to code customer affect as well as performance quality. For each call, we obtained ratings from two independent coders who were blind to our hypotheses.

### Measures

**Start-of-workday mood.** We measured a person’s start-of-workday mood at the point at which she or he first sits down to work, prior to engaging in any customer interactions. We asked employees to report their mood at the start of each day, using the following phrasing: “Before you begin your day, tell us how you feel. Using the scale below, please indicate to what extent you feel this way right now.” The response scale ranged from 1 (“very slightly or not at all”) to 5 (“extremely”). Pretesting and need to reduce the number of items, because of the demands of experience sampling, led us to use five positive and four negative affect items from Watson and Tellegen’s (1985) model of positive and negative affect and Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988). Positive mood examples include “excited” and “enthusiastic.” Negative mood examples include “upset” and “irritable.” We averaged the positive and negative items into separate scales representing start-of-workday positive ( $\alpha = .91$ ) and negative moods ( $\alpha = .76$ ).

**Perception of customer affective display.** Our interviews with employees and our field observations led us to use a modified list of adjectives from the affective circumplex model (Watson & Tellegen, 1985) to capture perceptions of customer affective display. Pretesting suggested that this list covered the range of affect customers displayed. CSRs were asked to answer the following questions twice each day on a survey titled “Reaction to the Call”: “Using the scale below, please indicate how the customer seemed to you.” The adjectives were “upset,” “rude,” “calm,” “insulting,” “cheerful,” “friendly,” and “frustrated.” The CSRs rated the applicability of each of these adjectives on a scale ranging from 1 (“very slightly or not at all”) to 5 (“extremely”). We combined the items “calm,” “cheerful,” and “friendly” to create a scale for perceived customer positive affective display and

combined “upset,” “rude,” “insulting,” and “frustrated” to create a scale for perceived customer negative affective display. Although “calm” is considered a low negative affect item in some studies (see Watson & Tellegen, 1985), we performed a factor analysis of the data and found that “calm” loaded very strongly with the other positive affect items (factor loading = .75) and did not load at all on the negative factor (factor loading =  $-.02$ ). In this service context, it may be that calmness is a very positive customer characteristic and more associated with other positive affect items. The Cronbach’s coefficient alpha was .81 for perceived customer positive affective display, and it was .85 for perceived customer negative affective display for the first daily measurement. Alpha was .80 for perceived customer positive affective display and .90 for perceived customer negative affective display for the second daily measurement.

**Coded customer affective display.** We also asked independent coders to rate customer affective display by listening to taped calls using the same items that the CSRs used to evaluate customers. We trained coders by listening to sample calls together, rating them, and discussing differences until we judged that they were ready to rate the calls independently. For the measures of coded customer affective display, we calculated intraclass correlation coefficient (ICC2) scores for coded customer positive and negative affective display to assess the reliability between raters. The ICC2 was .66 for customer positive affective display and .67 for customer negative affective display, suggesting that our raters were reasonably congruent in their ratings of customer positive and negative affective display (LeBreton & Senter, 2008). Moreover, the Cronbach’s alpha was .63 for qualitatively coded customer positive affective display and .73 for qualitatively coded customer negative affective display. The coders’ ratings of customer affective display provided a measure that we used as a control in our call-level analyses, and these ratings also provided us with a way to check if the CSR perceptions of customer affective display were related to another’s perception of the same event.

Theoretically, we have proposed that start-of-workday mood is related to employees’ perceptions of customer affective displays, but it was important to determine if these perceptions were also related to some “true” level of customer displayed affect. To test this, we were able to obtain a small sample of calls that could be perfectly matched to the call/customer that CSRs were engaging with just prior to the “reaction to the call” survey in which they provided their perceptions of customer affective display ( $n = 59$ ). Using hierarchical linear model-

ing to control for the nonindependence of observations, we compared the CSRs’ and coders’ ratings of customer affective display and found that CSR perceptions of customer positive affective display were related to coders’ ratings of customer affective display ( $b = .57, p = .08, n = 59$ , for positive and  $b = -.81, p < .05, n = 59$ , for negative). Moreover, CSR perceptions of customer negative affective display were related to coder ratings of customer affective display ( $b = .45, p < .01, n = 45$ , for negative; and  $b = -.87, p < .001, n = 45$ , for positive). The coded ratings of the calls displayed reasonable correspondence with the CSRs’ perceptions of customer positive and negative affective display (variance explained is 33.33 percent for positive and 34.37 percent for negative), a finding that is consistent with our theorizing that a person’s perceptions of events are influenced by the events but are also influenced by other factors, such as the person’s prior start-of-workday experiences.

**Employee affect subsequent to call.** We also asked employees to indicate their own felt affect subsequent to calls on the “reaction” survey described above. At each of the two data collection points, we asked how they felt right now (after a call) using the five positive and four negative affect items from Watson and Tellegen’s (1985) model and (Watson et al.’s (1988) PANAS. These scales demonstrated good reliability: for positive and negative affect, respectively, coefficient alpha values were .92 and .75 for the first daily measurement and .93 and .83 for the second daily measurement.

**Daily productivity.** The organization tracked daily productivity measures for each CSR. Three critical archival daily productivity measures for this organization were percentage of time available for answering calls, transfers, and calls per hour. The *percentage of time available* for answering calls is an indication of a CSR’s availability to actively engage with customers. Each time a CSR sits down to work, she or he logs into the organization’s call-routing system. When the CSR needs to stop taking calls, she/he must log out of the system to stop it from routing calls to his/her station. Percentage of time available signals whether the CSR is ready to take calls or is taking an unscheduled break, a problem for the organization’s staffing protocols. Our fieldwork indicated that logging out of the system for unscheduled breaks might be a coping response used for greater emotion regulation. In focus groups, CSRs indicated to us that they might log out in this way because they “needed a break.”

*Transfers* represent the number of times per day a CSR transfers a caller to either a supervisor or a claims adjuster. CSRs are expected to handle the bulk of calls coming into the center, whether they

are claims-related or status inquiries. Because CSRs are randomly assigned calls, when one controls for the total number of calls taken per day, more transfers represent poorer performance in this organization, as transfers create a burden on other members of the organization. Transferring fewer customers indicates that a CSR is resolving more problems alone and not passing them off to others, and it may signal greater cognitive flexibility and problem solving. Transferring more customers may signal that a CSR's cognitive resources for dealing with callers are lower because of emotion regulation requirements, or it may signal less cognitive flexibility in handling callers.

*Calls per hour*, one of the most common performance metrics used in a call center, is a measure of pure throughput. In our sample, CSRs took an average of 14 calls per hour, a level consistent with the average calls per hour rate in this organization. Calls per hour is a measure of efficiency in that people who are more cognitively flexible may be better able to nimbly dispatch problems and move on to the next customer. A CSR who needs to regulate more emotions may be slower because of the lack of cognitive resources devoted to the task at hand.

**Call-level performance quality.** In addition to tracking quantitative productivity metrics, the organization randomly taped CSRs' calls to provide feedback on quality of service; however, it did not retain these ratings. Instead, we taped calls during the period of the study and were able to code those that corresponded with our experience sampling data. We trained coders to rate these calls using the organization's quality criteria, focusing on a key organizational quality criterion, *verbal fluency*. Verbal fluency taps into the unscripted part of an interaction, wherein a CSR is not only expected to maintain a conversation with the customer while attending to other tasks, but also to use professional verbiage and avoid slang and verbal tics. Verbal fluency was an important quality metric in this organization, which emphasized reducing "dead air time" (time with no conversation) and at the same time maintaining a professional image in terms of speech patterns.

Verbal fluency (minimal pausing, fumbling, and use of fillers such as "um") is a compelling measure of performance quality because research has shown that it is linked to greater perceptions of competence and credibility (Miller & Hewgill, 1964; O'Keefe, 2002; Sereno & Hawkins, 1967). Moreover, verbal fluency is linked to our theoretical arguments because it has been associated with cognitive effort (Beattie & Bradbury, 1979; Butterworth, 1975; Greene, Lindsey, & Hawn, 1990). For example,

Greene and colleagues (1990) found that participants facing greater cognitive demands paused more in their speech, used more fillers, and were prone to greater verbal fumbling than those facing lower cognitive demands. Because verbal fluency and cognitive load are connected, using verbal fluency as a performance measure allowed us to capture some of the mechanisms proposed, such as emotion regulation and cognitive availability, wherein presumably greater/lower cognitive load would be associated with less/greater verbal fluency.

To measure verbal fluency, our coders evaluated each call for use of the following: verbal tics (e.g., repeatedly saying "um," "ya know," or "like"), verbal fumbling (e.g., tripping over words or mumbling), dead air time (silence while engaged in another task such as looking up information or typing), the use of slang or jargon (e.g., "yea" or "kindda"), and improper grammar (e.g., incomplete sentences, dropping words). Raters indicated the degree to which each of these factors existed on the following response scale: 1, "none"; 2, "some" ( $\leq 2$  instances); and 3, "excessive" ( $> 2$  instances). The ratings were then reverse-coded so that higher levels indicated greater verbal fluency and lower levels indicated less verbal fluency. The measure of verbal fluency was an average of these items. Because this is a count measure, which could be influenced by how long calls lasted, we controlled for call length (in seconds) in these analyses. The ICC2 for verbal fluency was .68, suggesting that our raters were reasonably congruent in their assessments of the CSRs' degrees of verbal fluency (LeBreton & Senter, 2008). The Cronbach's alpha coefficient for this measure was .73.

**Control variables.** Although our method (discussed below) naturally controls for stable individual characteristics by nesting analyses within persons, to control for potential systematic contextual influences on our dependent variables, we controlled for location (East Coast service center = 1; West Coast service center = 0). Numerous differences existed between the management practices of the two studied call centers, and they handled different volumes of calls.

## Model Estimation

Our sample for analysis included nested observations (i.e., multiple observations per person over time). Hence, to account for the bias associated with dependence among observations that occurs when data are nested within units (multilevel models), we used hierarchical linear modeling (HLM; Raudenbush & Bryk, 2002) to test our hypotheses.

**TABLE 1**  
Means, Standard Deviations, and Within-Person and Between-Person Correlations<sup>a</sup>

Variables	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Positive affect subsequent to event	3.06	1.10		-.12	.89*	.05	.59*	.52*	.23	-.15	-.25	-.19	.13	-.14	-.18
2. Negative affect subsequent to event	1.14	0.48	-.52*		-.16	.55*	-.30	.87*	.03	.40	.00	-.25	.04	.04	-.17
3. Positive start-of-workday mood	3.29	0.89	.24*	-.03		-.05	.51*	.44*	.28	-.06	-.25	-.30	.22	-.01	-.11
4. Negative start-of-workday mood	1.55	0.69	-.14	.09*	-.19		.32	.62*	.00	.08	-.06	-.32	-.04	.38	-.23
5. Perceived customer positive affective display	3.40	0.83	.25*	-.02	.20*	-.01		.43*	.06	-.20	-.35	-.13	.01	-.02	-.12
6. Perceived customer negative affective display	1.73	1.13	-.03	.09*	.07	.06	-.77*		.18	-.04	-.11	-.25	.05	-.04	-.29
7. Location	0.60	0.50								.33	-.73*	.09	.52*	-.10	-.56*
8. Transfers	3.79	3.49	-.01	.00	-.01	-.02*	.00	-.01			.41*	.43*	.28	.18	-.29
9. Percentage of time available to customers	76.68	26.78	.00	-.01	.00	.00	.01	-.02				.77*	-.13	-.02	.59*
10. Calls per hour	14.06	5.46	.00	.00	-.02	-.02*	-.02	.00					.23	-.05	-.30
11. Coded verbal quality	2.31	0.29	.04	-.03	.08	.11	-.08	.03						.44*	-.42*
12. Coded customer positive affect	2.27	0.26													-.26
13. Coded customer negative affect	1.32	0.32													

<sup>a</sup> Above the diagonal are between-person correlations. Below the diagonal are within-person correlations obtained using HLM analyses and including one covariate in each model; these correlations are standardized. Pairwise *n*'s for the within-person correlations range from 99 to 228.

\*  $p < .05$

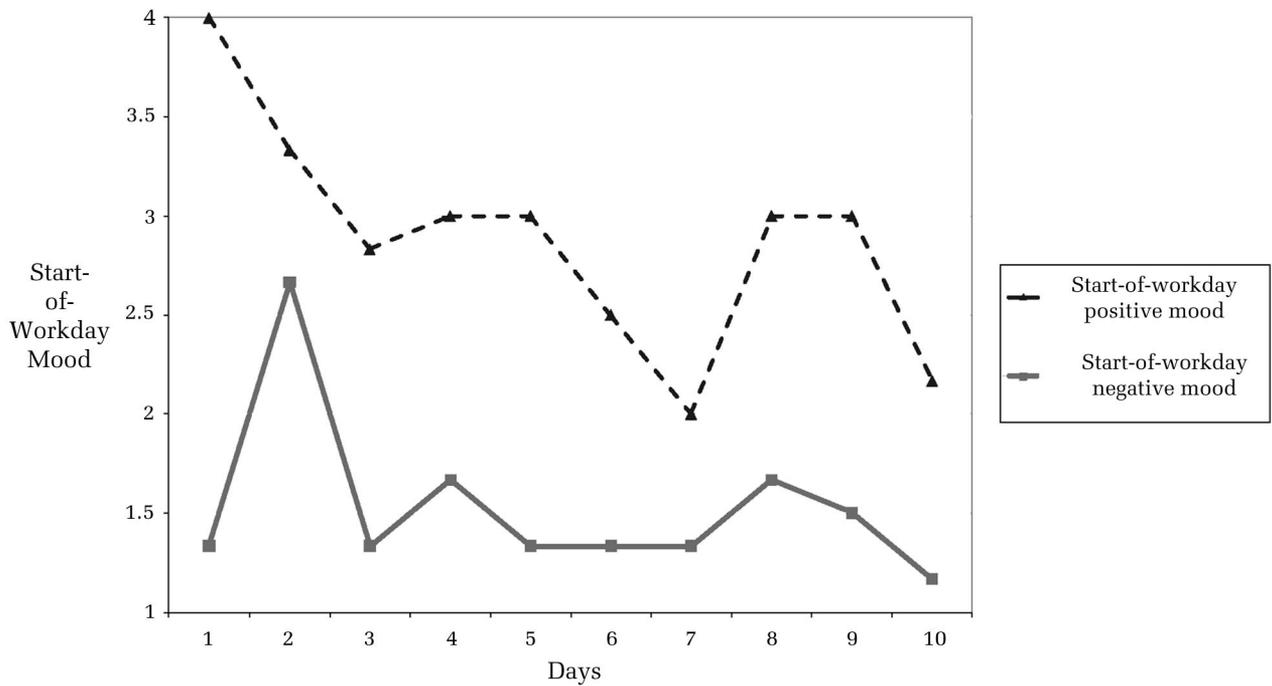
In HLM, the level of analysis of the dependent variables determines model structure. The dependent variables for Hypotheses 1a–1b, 2a–2b, and 3a–3b were an employee's perceptions of customer affect and the employee's own affect subsequent to a call, both measured at two points each day for each person (such measures are sometimes referred to as "moment" or "event" data). Because the independent variables were at different levels (event, day, and person), we used a three-level model to test Hypotheses 1a–3b: event nested within day nested within person. Appendix A contains a detailed explanation of these models.

The dependent variables of interest in Hypotheses 4a and 4b were performance outcomes. Collection of the productivity outcomes at the day level for this organization resulted in a two-level model: day nested within person. To conduct day-level analyses, we aggregated the two event-based affect measures to create a score for daily affect subsequent to calls for each employee. Beal and Weiss (2003) argued that even though such aggregation is not ideal, it is sometimes necessary given the models tested. Moreover, the correlations between employee positive affect subsequent to calls during the workday at event 1 and event 2, and employee negative affect subsequent to calls during the workday at event 1 and event 2 were high ( $r = .88$  for both), suggesting that it was reasonable to aggregate

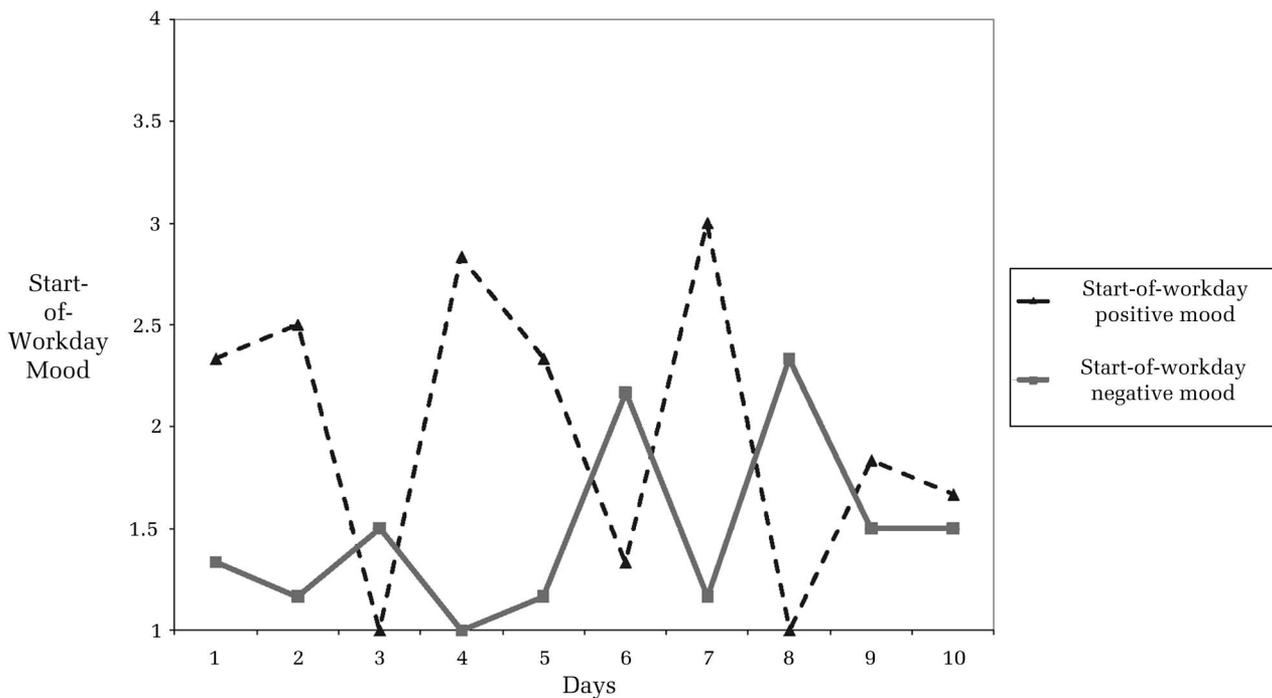
these two events into a daily measure of employee affect subsequent to calls to test for their effects on daily productivity measures. These aggregated measures also had good reliabilities ( $\alpha = .90$  for daily positive affect subsequent to calls, and  $\alpha = .74$  for daily negative affect subsequent to calls). Aggregating the event-based data to a daily measure is also theoretically meaningful when one considers the effects of employee affect subsequent to calls on productivity in that presumably it is some aggregation of affect subsequent to calls that influences overall daily productivity.

Our measure of performance quality, verbal fluency, was taken at the call level. Thus, here, we did not aggregate CSR affect subsequent to calls, but rather used the three-level models described above, with calls were nested within day within person. This procedure allowed us to test a finer-grained model of performance at the call level itself. It also allowed a stronger test of temporal causal ordering than is possible with the two-level models. For these analyses, CSR positive and negative affect subsequent to calls served as the key independent variables. The dependent variable was call-level verbal fluency, coded from calls that occurred *after* the CSR affect subsequent to calls measure, with call length and the distance in seconds between the measure of CSR affect and each subsequent call controlled.

**FIGURE 2A**  
**Person 1: Variance in Start-of-Workday Mood over Time**



**FIGURE 2B**  
**Person 2: Variance in Start-of-Workday Mood over Time**



In our discussion of affect subsequent to calls, we assumed that within-person variance over time in part drives affect. Because of this theoretical assumption, following Hoffman and Gavin (1998), we

person-mean-centered the time-varying independent variables and included the person means to capture between-person variation, in addition to within-person variation.

**TABLE 2**  
**Effects of Start-of-Workday Mood on Perception of Work Event (Customer Affective Display)**

Variables	Perceived Customer Positive Affective Display		Perceived Customer Negative Affective Display	
	Hypothesis 1a: Model 1	With negative mood: Model 2	Hypothesis 2a: Model 3	With positive mood: Model 4
Intercept	1.70***	2.06***	0.22	-1.16
Location	0.02	0.16	0.45	0.17
Start-of-workday positive mood (between person)	0.54***	0.34***		0.38*
Start-of-workday positive mood (within person)	0.38***	0.50***		-0.08
Start-of-workday negative mood (between person)		0.04	0.73*	0.97**
Start-of-workday negative mood (within person)		0.01	0.10	0.42*
$\chi^2$	32.43***	4.75 <sup>+</sup>	38.78***	9.26**
Sample size (person-event)	184	137	139	134

<sup>+</sup>  $p < .10$

\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $p < .001$

## RESULTS

Table 1 shows the means, standard deviations, and both between- and within-person correlations for key study variables. To better illustrate the within-person variation in these study variables, in Figure 2 we provide an example of within-person variance, graphing start-of-workday positive and negative mood for two of our respondents over ten days of our study. Person 1's start-of-workday positive and negative mood tended to be stable across time but still varied from day to day (see Figure 2A). Person 2's mood was more varied from day to day (see Figure 2B). These graphs show that these two individuals demonstrated mean differences in start-of-workday mood between person, as one might expect, and important variance within each person over time as well.

To check if the theoretical reason for using HLM (i.e., variance at within- and between-person levels) was empirically justified, we examined the intraclass correlation coefficient (ICC1), a measure of the variance attributable to units, for all key dependent variables. Note that within-person variance includes the day and event levels where applicable. The within-person variance for our dependent variables ranged from 14 percent to 65 percent, a range that might bias ordinary least squares (OLS) results, indicating that HLM was a more appropriate analytic technique than standard OLS (Kreft & De Leeuw, 2002; LeBreton & Senter, 2008).

In the analyses presented in Tables 2, 3, and 4, we examined both the within-person and the be-

tween-person variables to understand the nature of the relationships studied. For example, the between-person measure of start-of-workday mood captures stable features of a person's start-of-workday mood, such as chronic life events and perhaps even a habitual reaction to entering the workplace. In contrast, within-person start-of-workday mood captures day-to-day fluctuations in people's moods. The findings for the within-person measures of start-of-workday mood, perceptions of customer affective display, and employee affect subsequent to events are the ones that provide the most direct evidence of the importance of daily fluctuations in start-of-workday mood and employee affect subsequent to events that we are proposing; however, the between-person findings also provide us with an understanding of how "trait-like" aspects of these affective constructs are associated with the proposed relationships as well. It is also important to note that our first three sets of hypotheses do not predict cross-affective effects (e.g., negative start-of-day mood predicting employee positive affect subsequent to an event), because existing research has suggested that positive and negative affect are independent of one another (Watson & Tellegen, 1985). Thus, in the interests of focusing on the core relationships predicted, we do not include cross-affective effects in all the analyses presented in our tables. However, we tested for whether these cross-affective constructs related to our findings in all of our models and include significant findings where applicable.

**TABLE 3**  
**Effects of Start-of-workday Mood and Perceptions of Work Events on Employee Affect Subsequent to Events**

Variables	Employee Positive Affect Subsequent to Event			Employee Negative Affect Subsequent to Event		
	Hypothesis 1b: Model 1	Hypothesis 3a: Model 2	Hypotheses 1b and 3a: Model 3	Hypothesis 2b: Model 4	Hypothesis 3b: Model 5	Hypotheses 2b and 3b: Model 6
<i>Controls</i>						
Intercept	-0.55	0.20	-1.00*	0.56	0.51*	0.37
Location	0.12	0.41	0.11	0.01	-0.07	-0.10
<i>Start-of-workday mood</i>						
Start-of-workday positive mood (between person)	1.12***		1.09***			
Start-of-workday positive mood (within person)	0.26***		0.31***			
Start-of-workday negative mood (between person)				0.44*		0.21
Start-of-workday negative mood (within person)				0.12**		0.13**
<i>Perceptions of work event (perceived customer affective display)</i>						
Customer positive affective display (between person)		0.76**	0.16			
Customer positive affective display (within person)		0.20***	0.17***			
Customer negative affective display (between person)					0.48**	0.13
Customer negative affective display (within person)					0.04	-0.06*
$\chi^2$	50.70***	245.93***	48.81***	108.40***	46.52***	62.80***
Sample size (person-event)	175	203	170	136	160	135

\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $p < .001$

The first set of findings shown in Table 2 concern the effect of start-of-workday mood on employees' perceptions of customer affective display. As Hypothesis 1a predicts, we found that start-of-workday positive mood (both within- and between-person) was positively related to employees' perceptions of customers positive affective display (Table 2, column 2). As Hypothesis 2a predicts, we found that start-of-workday negative mood (within- and between-person) was positively related to employees' perceptions of customers' negative affective display (Table 2, column 4).

The second set of findings concern how employees feel subsequent to calls and can be found in Table 3. As Hypothesis 1b predicts, we found that, controlling for perceptions of customer affective display, start-of-workday positive mood (both within- and between-person), was positively re-

lated to employee positive affect subsequent to calls (Table 3, column 3). As Hypothesis 2b predicts, we found that start-of-workday negative mood (within person) was positively related to employee negative affect subsequent to calls (Table 3, column 6). As Hypothesis 3a predicts, controlling for start-of-workday mood, within-person perceived customer positive affective display was positively related to employee positive affect subsequent to calls (Table 3, column 3) Thus, perceiving a customer as displaying more positive affect than the average customer (within person) was related to an employee's feeling more positive affect subsequent to a call from that customer. In contrast, Hypothesis 3b was not supported (Table 3, column 6); with start-of-workday mood controlled, within-person perceived customer negative affective display was not positively related to employee nega-

**TABLE 4**  
**Effects of Employee Affect Subsequent to Events on Productivity Outcomes<sup>a</sup>**

Variables	Transfers: Model 1	Transfers: Model 2	Calls per Hour: Model 3	Calls per Hour: Model 4	Percentage of Time Available: Model 5	Percentage of Time Available: Model 6
<i>Controls</i>						
Intercept	-9.24*	-10.75**	23.22***	24.10***	87.11***	90.27***
Location	0.40	-0.39	0.18	-0.51	-3.61	-3.19 <sup>†</sup>
Total number of calls (between person)	0.13*	0.10***				
Total number of calls (within person)	0.09***	0.14***				
<i>Employee affect subsequent to event</i>						
Positive affect (between person)	-0.95	-0.79	-0.31	-0.68	0.78	0.69
Positive affect (within person)	-0.71	0.80	0.00	-0.22	0.33	-0.96
Negative affect (between person)	3.91*	3.79*	-6.28**	-5.57*	2.87	0.02
Negative affect (within person)	-1.75	0.65	-0.80	-0.51	-2.81*	-3.33*
<i>Start-of-workday mood</i>						
Start-of-workday positive mood (within person)		-0.67		-0.00		1.52 <sup>†</sup>
Start-of-workday negative mood (within person)		-1.91*		-0.81		-1.04
$\chi^2$	13.85***	11.44***	29.44***	24.68***	54.91***	52.17***
Sample size (person-day)	117	92	117	92	117	92

<sup>a</sup> We did not include between-person start-of-workday mood variables as they were highly correlated with the between-person affect subsequent to calls. The pattern of results did not differ when we included both in the model.

<sup>†</sup>  $p < .10$

\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $p < .001$

tive affect subsequent to calls; rather, it had a significant, negative relationship with it. We comment further on this unexpected finding in the Discussion section.

The third set of findings concern the performance hypotheses. Table 4 presents the results for performance based on the daily productivity measures: the percentage of time a CSR was available to customers, the number of calls transferred, and calls per hour. Table 5 presents the results for these hypotheses using the call-level measure of verbal fluency to operationalize performance quality. In each of the performance models, we also included start-of-workday mood and perceived customer affective display. For the productivity measures (Table 4), none of the perceived customer affective display variables were related to our results. Thus, given our sample size, we only report start-of-workday mood in addition to employee affect subsequent to calls.

Hypothesis 4a was partially supported. Although employee positive affect subsequent to a call was not related to the daily productivity measures (see Table 4), as predicted, we did find that employees' positive affect subsequent to the call was positively related to call quality (measured by coded verbal fluency on calls taped subsequent to

the event) when we controlled for the distance from the event and for the coded affect of the customer (see Table 5).

Hypothesis 4b was also partially supported. As predicted, we found that within-person fluctuations in employee negative affect subsequent to calls were negatively related to one of the productivity measures, the percentage of time available to take calls. That is, if subsequent to calls taken during the day a person had a level of negative affect that was higher than their normal level, she or he had less availability for taking calls, perhaps indicating a need to take a break in response. The results for the other two productivity measures were also consistent with Hypothesis 4. Between-person negative affect subsequent to calls was negatively related to the number of calls taken per hour and positively related to the number of calls transferred. This suggests that people who were higher in negative affect than others took fewer calls per hour, as is consistent with the idea that negative affect is associated with slower processing of information (Schwarz, 2002). Likewise, people who were generally higher in negative affect subsequent to calls than others tended to transfer more calls.

Lastly, Hypotheses 5 and 6 concern the role of an employee's own affect subsequent to calls as a me-

**TABLE 5**  
**Effects of Employee Affect Subsequent to Event on Coded Verbal Quality**

Variables	Model 1	Model 2	Model 3
Intercept	1.96***	2.19***	2.46***
Location	0.33	0.11	0.06
Distance from measurement of CSR affect subsequent to event (in seconds)	0.00	-0.00*	-0.00*
Length of call (in seconds) <sup>a</sup>	0.00	0.00	0.00
<i>Coded customer mood</i>			
Coded customer positive mood			-0.05
Coded customer negative mood			-0.15*
<i>Start-of-workday mood</i>			
Start-of-workday positive mood (within person)		0.01	0.03
Start-of-workday negative mood (within person)		0.20	0.22
<i>Employee affect subsequent to event</i>			
positive affect (between person)	0.01	-0.02	-0.02
positive affect (within person)	0.22*	0.28*	0.25*
negative affect (between person)	0.01	-0.01	0.06
negative affect (within person)	0.04	0.06	0.02
$\chi^2$	28.58***	20.53**	21.17***
Sample size (person-day)	213	188	186

<sup>a</sup> "CSR" is "customer service representative." The dependent variable for these models is coded verbal fluency on calls that occurred subsequent to the employee affect measurement. We did not include between-person start-of-workday mood in these models as these variables were highly correlated with the between-person employee affect. The pattern of results did not differ when we included both in the model.

\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $p < .001$

diator. We tested for such mediation using within-person measures of start-of-workday mood, perceptions of customer affective display, and employee affect subsequent to calls. We used the MacKinnon, Lockwood, Hoffman, West, and Sheets' (2002) distribution of products (P) method, which takes the product of the z-scores of the two paths of a mediation. MacKinnon and colleagues (2002) assessed 14 different methods for testing intervening variables. The distribution of products method was found to have lower type I error and better statistical power than the other methods, even with smaller sample sizes. Applying this method to our data, in partial support of Hypothesis 5, we found that employee positive affect subsequent to calls mediated the relationship between start-of-workday positive mood and performance quality (i.e., verbal fluency) ( $P = 8.07, p < .001$ ). Likewise, employee negative affect subsequent to calls mediated the relationship between start-of-workday negative mood and the percentage of time available to customers ( $P = -7.84, p < .001$ ). Hypothesis 6 was also partially supported. We found evidence that employee positive affect subsequent to calls mediated the relationship between perceptions of customer positive affective display and quality (i.e.,

verbal fluency) ( $P = 7.08, p < .001$ ). Because we initially found a significant, negative relationship between perceptions of customer negative affective display and employee negative affect subsequent to calls for Hypothesis 3b, we found a mediation effect here that was again contrary to our expectations for this set of relationships. Employee negative affect subsequent to calls mediated the relationship between perceptions of customer negative affective display and percentage of time available to customers ( $P = 5.57, p < .01$ ). These mediation analyses provide further indication that negative affect was related to daily measures of productivity, whereas positive affect was related to quality measures of performance.

## DISCUSSION

In this study, we highlight the importance of examining the mood employees bring with them to work. Whether they wake up on the "right or wrong side of the bed" is related to how they perceive work events, how they feel subsequent to those events, and how they perform during the day. However, waking up on the right or wrong side of the bed is not deterministic. Start-of-workday mood

may cast a positive glow or a dark shadow over perceptions of work events and employee affect within a given day, but there is also evidence that work events matter and that employee affect does fluctuate within person over days. Moreover, employee positive and negative affect subsequent to work events are related to performance, albeit to different types of performance. Lastly, we show that start-of-workday mood is related to performance through its effect on employee affect subsequent to work events.

### Theoretical Contributions

We contribute to theorizing about affective events and start-of-workday experiences in several ways: first, by examining the role of start-of-day mood in providing a frame for how individuals perceive and feel about work events; second, by testing the relationship between affect subsequent to work events and objective performance metrics at a daily level; and third, by linking start-of-workday mood to objective performance through the affect people experience subsequent to work events. Moreover, we contribute to theory by taking a dynamic view and examining fluctuations in affect and performance.

**Start-of-workday mood.** By shining a light on the construct of start-of-workday mood and how it relates to both work experiences (in the form of perceptions of work events) and daily work affect (employee affect subsequent to work events), we contribute to research on affect in the workplace and to the emerging literature on recovery experiences. Extending past research that focuses on affect during workdays (Weiss & Cropanzano, 1996), we show that both positive and negative start-of-workday mood relate to how people perceive affective experiences and how they ultimately feel and perform at work. These findings suggest that affective starting points matter, anchoring and framing employees' perceptions of customers and their affective experiences at work. Thus, whereas affective events theory focuses on events within an organization and dispositional effects on work affect (Weiss & Cropanzano, 1996), our findings indicate that start-of-workday mood is a valuable new construct that promoting a more complete understanding of affect and workplace experiences.

Interestingly, our findings also suggest that although start-of-workday mood was highly related to affect felt subsequent to work events, this relationship was not inexorable. Within a day, people's affect could and did change, although it seemed that negative affect was more changeable than positive affect. In 17 percent of the cases we examined,

an employee who started the day with higher positive mood than normal moved to a state of lower positive affect than normal subsequent to the focal call. In 40 percent of the cases, an employee who started off with higher negative mood than usual moved to a state of lower negative affect than normal subsequent to the call.

Despite the fact that people's affect did change over the course of these workdays, our findings indicate that start-of-workday mood was ultimately related to objective performance via the mediating mechanism of affect subsequent to events. Thus, start-of-workday mood not only helps to shape how employees see events and feel during their workday, but also contributes to how they perform at work. This relationship also adds to research on recovery (e.g., Binnewies et al., 2009; Sonnentag, 2003; Sonnentag & Bayer, 2005; Sonnentag & Zijlstra, 2006) by empirically showing that start-of-workday factors relate to objective performance.

**Affect and performance.** We contribute to the growing literature on daily affect and objective work performance in two ways. First, we examine a broader range of organizational performance metrics, including several measures of productivity as well as of quality of service (cf. Miner & Glomb, 2010; Totterdell, 1999, 2000). Second, we provide a more nuanced view of the relationships between positive and negative affect and different types of performance rather than using hedonic tone. Our more nuanced view allows us to untangle whether relationships are being driven by positive or negative affect. Such nuance may be important for understanding the pattern of findings in past work. For example, Miner and Glomb (2010) found a relationship between hedonic tone and speed (a productivity measure), but not quality of service; likewise, Totterdell (1999) found that hedonic tone was associated with the performance of batters but not that of bowlers in the context of cricket teams.

It may be that the processes associated with positive and negative affect matter more for some types of performance than others (cf. Dasborough & Ashkanasy, 2005). This is certainly true in our study, in which we found that negative affect subsequent to events was more strongly associated with productivity measures and in particular the customer availability measure, suggesting that those in a negative mood tend to require more breaks, as is consistent with theorizing on emotion regulation (Gross, 1998). Research on recovery activities and mood has suggested that taking breaks can change people's mood and influence their performance when they return to work. For example, Trougakos, Beal, Green, and Weiss (2008) found that using a break as respite rather than as a time to do chores

resulted in higher positive mood, lower negative mood, and more positive displays in cheerleader instructors. Although our study did not examine the actions taken during breaks and their consequences, our findings suggest one possible reason for taking more breaks: greater negative affect experienced during the day. Moreover, the fact that negative affect was not related to the quality of customer interactions suggests that breaks may serve as a recovery mechanism in a manner consistent with Trougakos and colleagues' findings. The relationship between negative affect, breaks, and productivity may be especially common in service organizations, where showing positive and *not* negative affect is consistent with expected display rules (Ekman, 1992; Wilk & Moynihan, 2005). In contrast, we found that positive affect subsequent to events was positively related to the call quality as rated by verbal fluency, in keeping with theorizing about the relationship between positive affect and cognitive flexibility (Fredrickson, 2001) and adding to research on how positive mood relates to improved performance (Lyubomirsky, King, & Diener, 2005). By examining verbal fluency, we show that positive affect relates to performance in ways that may be meaningful to the customer experience.

**Customer interactions and the relationship with affect and performance.** A third contribution of our study is to examine perceptions of the interpersonal dynamics between customers and employees. For positive affective display, we found results consistent with theory on emotional contagion (e.g., Hatfield et al., 1993; Rupp & Spencer, 2006), affective events theory (Weiss & Beal, 2005; Weiss & Cropanzano, 1996), and goal fulfillment: perceptions of customer positive affective display were related to employee felt positive affect. However, for negative affective display, the relationship was more complex. We found that when employees perceived customer affective displays to be more negative, the employees themselves reported feeling *less* negative affect subsequent to calls, suggesting that they might be employing defensive strategies to make themselves feel better. To better understand this unexpected finding, we examined and found a significant, negative interaction between within-person perceptions of customer negative affective display and between-person start-of-workday negative affect ( $b = -0.38, p < .001$ ). This interaction showed that the negative relationship was only significant for employees who had higher trait-like start-of-workday negative mood (simple slope =  $-.20, t = -4.47$ ) but was not significant for those who had lower trait-like start-of-workday negative mood. Perhaps the encounters with customers with higher than normal perceived negative

affect enabled those who had high levels of trait-like start-of-workday negative affect to put their own problems into perspective by engaging in social comparison, or the encounters may have simply been congruent with their general start-of-workday mood ("misery loves company"), or these individuals may have employed a strategy for managing and regulating affect. Future research should examine these potential explanations to determine the mechanisms underlying this relationship.

Interestingly, although employees did not report feeling more negative after encountering customers whom they perceived as negative, the findings from our coded customer data show that customer negative affective display was associated with lower performance quality. This finding supports the idea that the exchange between customer and employee occurred in ways that affected performance (Pugh, 2001), but in ways of which they might have been unaware.

**Dynamic nature of these relationships.** An additional contribution of our study is that we have examined these phenomena in a dynamic rather than a static way by examining within-person as well as between-person affect. Examining fluctuations in how people feel and perceive events over time revealed different insights than simply looking at one event per person or how a person feels or perceives events in general. Extending past research showing a positive relationship between prosocial behaviors and state, but not trait, affect (George, 1991), we found that fluctuations in state positive affect (i.e., within-person), but not trait (i.e., between-person), positive affect related to performance quality. Moreover, we found that fluctuations in state negative affect related to productivity, as did trait negative affect. The relationship of between-person negative affect and both transfers and calls per hour is noteworthy, indicating that people who on average experienced more negative affect subsequent to events than did others were slower at processing calls and were more likely to transfer calls. These relationships suggest an inability to address the needs of the customer. Past experimental research has suggested that individuals who tend to be more negative on average may process information more slowly (Schwarz, 2002), which may influence the speed with which they work and the way they cope with customer problems. As discussed above, state negative affect related to an employee's availability to customers, in that the employees took more breaks. Thus, fluctuations in state affect may be associated with different performance dimensions than trait affect: trait negative affect may relate to processing style, whereas fluctuations in state negative affect may

signal the need for emotion regulation (i.e., taking more breaks for recovery). Future research should further explore the ways in which trait affect and fluctuations in state affect are associated with processing style and cognitive availability or the lack thereof (in the case of need for emotion regulation). Continued examination of oscillations in mood (Weiss et al., 1999) and dynamic cycles of emotion (Hareli & Rafaeli, 2008) may be important for future research to better explain reactions to events and ultimately performance-related behaviors.

### Managerial Implications

Practically, our findings point to the importance of variation in state affect, especially start-of-workday mood, something that managers have the power to influence each workday. In many organizations, and especially in those with careful scheduling, such as call centers, tardiness is seen as unacceptable. Indeed, we have interacted with managers of call center organizations that punish workers for even one-minute violations in sign-in. By acting punitively toward an already frazzled employee first thing in the morning, a manager may be setting the employee up to have a less productive day. This may be especially the case, given that we found that when negative affect from start-of-workday mood continues unabated throughout a workday, employees take the most breaks and have the least customer availability. Second, in many organizational settings, managers often focus on minimizing negative mood to conform to positive display rules. However, our findings suggest that performance has multiple dimensions and that minimizing negative mood is important for increasing operational capacity through increasing employees' availability to customers, whereas increasing positive mood is important for encouraging higher quality of service. Depending on what performance goal is more important, a manager may choose to focus more on either minimizing negative or enhancing positive affect, which may require different interventions. We encourage managers to be mindful of the effects of initial and ongoing interactions with their employees and their role in setting start-of-workday mood and affective reactions going forward.

### Limitations and Future Research

Our study has several limitations. First, causality may be reversed for some of the hypothesized relationships. For example, Fisher and Noble (2004) examined performance leading to affect. Because our quantitative performance measures were aggre-

gated over days, it is possible that some of the experiences related to these performance outcomes occurred prior to our sampling of affect subsequent to calls. However, our call-level performance data in part address such questions. Here, we used only those calls that occurred after the affect subsequent to call measurement was taken, preserving temporal causal ordering. We believe these analyses provide more evidence of the causal relationships suggested by the theorizing but cannot entirely eliminate the question of causality from every analysis.

Second, our measure of perceived customer affective display was from the same source as our measure of employee affect subsequent to calls during the workday, which may raise questions about common method bias (i.e., inflation of relationships among study variables). To check for effects of common method bias, we both further analyzed our data and used additional data. It is unlikely that common method bias entirely accounts for the relationships because the correlations between affect subsequent to calls and perceived customer affective display are varied, and in fact some are quite low. Such variation would be unlikely if common method variance were driving the results (the within-person correlation for perceived customer positive affective display and CSR positive affect was .25, and it was .09 for the relationship between perceived customer negative affective display and CSR negative affect; see Table 1). In addition, we performed Harmon's one-factor test (Podsakoff & Organ, 1986); the results suggested that these constructs were not related solely because of common method variance. Our use of third-party coders to validate the CSRs' perceptions of the customers, discussed in the Methods section, also minimizes concerns about same-source bias in the perceived customer and CSR affect measures. Further, for the majority of analyses in our model (where we did find significant effects), we used multiple sources of data, many of which were temporally separated.

Third, these results may not be generalizable, since we examined these questions within one organization and one type of job, customer service representative. We limited the experience sampling data collection to the customer service representatives because we wanted to test the relationship between employee affect subsequent to events and fine-grained performance measures, and such measures are different for different types of jobs and are not always available daily. Future research should try to examine these questions in other types of organizations and with different types of jobs.

Despite these limitations, the organizational setting we studied here allowed us to tap into real work emotions and offered an exceptional oppor-

tunity to gather both subjective data about affect and objective performance data. Our study has several intriguing findings that are worthy of future research. First, how employees feel as they walk in the door can persist in ways that are related to how they perceive work events and feel in the workplace. From a theoretical standpoint, this finding suggests that including factors from beyond an employee's proximate work environment may be important to more fully specifying models of workplace feelings and behaviors. As such, future research should include start-of-workday and non-work sources of mood in studies of employee daily affect. Moreover, start-of-workday mood may come from a variety of sources. We know from past research that employees often cannot check their nonwork feelings at the office door (Edwards & Rothbard, 2000; Rothbard, 2001; Williams & Alliger, 1994) and that the boundaries between non-work and work roles are not always clearly demarcated (Ashforth, Kreiner, & Fugate, 2000; Nippert-Eng, 1995; Rothbard, Phillips, & Dumas, 2005). Understanding what types of experiences make up start-of-workday mood, including role transitions such as commuting (Kulik, 2003), is an important avenue for future research and should be examined in more depth.

## Conclusions

Our study has highlighted the importance of start-of-workday mood as an important factor that is related to how people perceive work events and how they feel throughout the workday subsequent to those events—which, in turn, is related to objective work performance. These findings suggest that affective starting points matter and should be considered alongside more proximate workplace events in shaping understanding of how employees feel and perform at work.

## REFERENCES

- Ashby, F. G., Isen, A. M., & Turken, A. U. 1999. A neuropsychological theory of positive affect and its influence on cognition. *Psychological Review*, 106: 529–550.
- Ashforth, B. E., Kreiner, G. E., & Fugate, M. 2000. All in a day's work: Boundaries and micro role transitions. *Academy of Management Review*, 25: 472–491.
- Ashkanasy, N. M., & Daus, C. S. 2002. Emotion in the workplace: The new challenge for managers. *Academy of Management Perspectives*, 16: 76–86.
- Barger, P. B., & Grandey, A. A. 2006. Service with a smile and encounter satisfaction: Emotional contagion and appraisal mechanisms. *Academy of Management Journal*, 49: 1229–1238.
- Barsade, S. G. 2002. The ripple effect: Emotional contagion and its influence on group behavior. *Administrative Science Quarterly*, 47: 644–675.
- Barsade, S. G., Brief, A. P., & Spataro, S. E. 2003. The affective revolution in organizational behavior: The emergence of a paradigm. In J. Greenberg (Ed.), *Organizational behavior: The state of the science (2nd ed.)*: 3–52. Mahwah, NJ: Erlbaum.
- Basch, J., & Fisher, C. D. 2000. Affective events-emotions matrix: A classification of work events and associated emotions. In N. Ashkanasy, C. Hartel, & W. Zerbe (Eds.), *Emotions in the workplace: Research, theory, and practice*: 36–48. Westport, CT: Quorum/Greenwood Publishing.
- Baumeister, R. F., Bratslavsky, E., Muraven, M., & Tice, D. M. 1998. Ego depletion: Is the active self a limited resource? *Journal of Personality and Social Psychology*, 74: 1252–1265.
- Beal, D. J., & Weiss, H. M. 2003. Methods of ecological momentary assessment in organizational research. *Organizational Research Methods*, 6: 440–464.
- Beal, D. J., Weiss, H. M., Barros, E., & MacDermid, S. M. 2005. An episodic process model of affective influences on performance. *Journal of Applied Psychology*, 90: 1054–1068.
- Beattie, G. W., & Bradbury, R. J. 1979. An experimental investigation of the modifiability of the temporal structure of spontaneous speech. *Journal of Psycholinguistic Research*, 8: 225–248.
- Binnewies, C., Sonnentag, S., & Mojza, E. J. 2009. Daily performance at work: Feeling recovered in the morning as a predictor of day-level job performance. *Journal of Organizational Behavior*, 30: 67–93.
- Bower, G. H. 1981. Mood and memory. *American Psychologist*, 36: 129–148.
- Butterworth, B. 1975. Hesitation and semantic planning in speech. *Journal of Psycholinguistic Research*, 4: 75–87.
- Cacioppo, J. T., & Gardner, W. L. 1999. Emotion. In J. T. Spence (Ed.), *Annual review of psychology*, vol. 50: 191–214. Palo Alto, CA: Annual Reviews.
- Carlson, M., Charlin, V., & Miller, N. 1988. Positive mood and helping behavior: A test of six hypotheses. *Journal of Personality and Social Psychology*, 55: 211–229.
- Dalal, R. S., Lam, H., Weiss, H. M., Welch, E. R., & Hulin, C. L. 2009. A within-person approach to work behavior and performance: Concurrent and lagged citizenship-counterproductivity associations, and dynamic relationships with affect and overall job performance. *Academy of Management Journal*, 52: 1051–1066.

- Dasborough, M. T., & Ashkanasy, N. M. 2005. Follower emotional reactions to authentic and inauthentic leadership influence. In W. L. Gardner, B. J. Avolio, & F. O. Walumbwa (Eds.), *Monographs in leadership and management*, vol. 3: *Authentic leadership theory and practice—Origins, effects and development*: 281–300. Oxford, U.K.: Elsevier/JAI.
- Edwards, J. R., & Rothbard, N. P. 2000. Mechanisms linking work and family: Clarifying the relationship between work and family constructs. *Academy of Management Review*, 25: 178–199.
- Ekman, P. 1992. An argument for basic emotions. *Cognition and Emotion*, 6(3-4): 169–200.
- Fisher, C. D. 2002. Antecedents and consequences of real-time affective reactions at work. *Motivation and Emotion*, 26: 3–30.
- Fisher, C. D., & Noble, C. S. 2004. A within-person examination of correlates of performance and emotions while working. *Human Performance*, 17(2): 145–168.
- Forgas, J. P. 1994. Sad and guilty? Affective influences on the explanation of conflict episodes. *Journal of Personality and Social Psychology*, 66: 56–68.
- Forgas, J. P. 2001. Affect, cognition, and interpersonal behavior: The mediating role of processing strategies. In J. P. Forgas (Ed.), *Handbook of affect and social cognition*: 293–318. Mahwah, NJ: Erlbaum.
- Forgas, J. P., Bower, G. H., & Krantz, S. 1984. The influence of mood on perceptions of social interactions. *Journal of Experimental Social Psychology*, 20: 497–513.
- Forgas, J. P., Levinger, G., & Moylan, S. 1994. Feeling good and feeling close: Mood effects on the perception of intimate relationships. *Personal Relationships*, 1: 165–184.
- Fredrickson, B. L. 1998. What good are positive emotions? *Review of General Psychology*, 2: 300–319.
- Fredrickson, B. L. 2001. The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, 56: 218–226.
- Fuller, J. A., Stanton, J. M., Fisher, G. G., Spitzmuller, C., Russell, S. S., & Smith, P. C. 2003. A lengthy look at the daily grind: Time series analysis of events, mood, stress, and satisfaction. *Journal of Applied Psychology*, 88: 1019–1033.
- Gans, N., Koole, G., & Mandelbaum, A. 2003. Telephone call centers: Tutorial, review, and research prospects. *Manufacturing & Service Operations Management*, 5(2): 79–141.
- George, J. M. 1991. State or trait: Effects of positive mood on prosocial behaviors at work. *Journal of Applied Psychology*, 76: 299–307.
- Grandey, A. A. 2003. When “the show must go on”: Surface acting and deep acting as determinants of emotional exhaustion and peer-rated service delivery. *Academy of Management Journal*, 46: 86–96.
- Grandey, A. A., Tam, A. P., & Brauburger, A. L. 2002. Affective states and traits in the workplace: Diary and survey data from young workers. *Motivation and Emotion*, 26: 31–55.
- Greene, J. O., Lindsey, A. E., & Hawn, J. J. 1990. Social goals and speech production: Effects of multiple goals on pausal phenomena. *Journal of Language and Social Psychology*, 9: 119–134.
- Greenhaus, J. H., & Powell, G. N. 2006. When work and family are allies: A theory of work-family enrichment. *Academy of Management Review*, 31: 72–92.
- Gross, J. J. 1998. The emerging field of emotion regulation: An integrative review. *Review of General Psychology*, 2: 271–299.
- Hareli, S., & Rafaeli, A. 2008. Emotion cycles: On the social influence of emotion in organizations. In A. Brief & B. Staw (Eds.), *Research in organizational behavior*, vol. 28: 35–59. Greenwich, CT: JAI .
- Hatfield, E., Cacioppo, J. T., & Rapson, R. L. 1993. Emotional contagion. *Current Directions in Psychological Science*, 2: 96–99.
- Henkel, J. M., & Hinz, V. B. 2004. Success and failure in goal attainment as a mood induction procedure. *Social Behavior and Personality*, 32: 715–722.
- Hochschild, A. R. 1983. *The managed heart: Commercialization of human feeling*. Berkeley: University of California Press.
- Hoffman, D. A., & Gavin, M. B. 1998. Centering decisions in hierarchical linear models: Implications for research in organizations. *Journal of Management*, 24: 623–641.
- Hsee, C. K., Hatfield, E., Carlson, J. G., & Chemtob, C. 1990. The effect of power on susceptibility to emotional contagion. *Cognition and Emotion*, 4: 327–340.
- 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., 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.
- Isen, A. M., & Daubman, K. A. 1984. The influence of affect on categorization. *Journal of Personality and Social Psychology*, 47: 106–1217.

- Isen, A. M., Rosenzweig, A. S., & Young, M. J. 1991. The influence of positive affect on clinical problem solving. *Medical Decision Making*, 11: 221–227.
- 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.
- Kreft, I., & De Leeuw, J. 2002. *Introducing multilevel modeling*. London: Sage.
- Kulik, L. 2003. Morning passages from home to work among managers in Israel: Intergender differences. *Sex Roles*, 48: 205–215.
- LeBreton, J. M., & Senter, J. L. 2008. Answers to 20 questions about interrater reliability and interrater agreement. *Organizational Research Methods*, 11: 815–852.
- Liu, Y., Prati, L. M., Perrewe, P. L., & Brymer, R. A. 2010. Individual differences in emotion regulation, emotional experiences at work, and work-related outcomes: A two-study investigation. *Journal of Applied Social Psychology*, 40: 1515–1538.
- Lyubomirsky, S., King, L., & Diener, E. 2005. The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin*, 131: 803–855.
- MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. 2002. A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods*, 7: 83–104.
- Marco, C. A., & Suls, J. 1993. Daily stress and the trajectory of mood: Spillover, response assimilation, contrast, and chronic negative affectivity. *Journal of Personality and Social Psychology*, 64: 1053–1063.
- McCrae, R. R., & Costa, P. T. 1991. Adding Liebe und Arbeit: The full five factor model and well-being. *Personality and Social Psychology Bulletin*, 17: 227–232.
- Mignonac, K., & Herrbach, O. 2004. Linking work events, affective states, and attitudes: An empirical study of managers' emotions. *Journal of Business and Psychology*, 19: 221–240.
- Miller, G. R., & Hewgill, M. A. 1964. The effect of variations in nonfluency on audience ratings of source credibility. *Quarterly Journal of Speech*, 50: 36–44.
- Miner, A. G., & Glomb, T. M. 2010. State mood, task performance, and behavior at work: A within-persons approach. *Organizational Behavior and Human Decision Processes*, 112: 43–57.
- Miner, A. G., Glomb, T. M., & Hulin, C. 2005. Experience sampling mood and its correlates at work. *Journal of Occupational and Organizational Psychology*, 78: 171–193.
- Morris, W. N. 1989. *Mood: The frame of mind*. New York: Springer-Verlag.
- Murnighan, J. K., & Conlon, D. E. 1991. The dynamics of intense work groups: A study of British string quartets. *Administrative Science Quarterly*, 36: 165–186.
- Niklas, C. D., & Dormann, C. 2005. The impact of state affect on job satisfaction. *European Journal of Work and Organizational Psychology*, 14: 367–388.
- Nippert-Eng, C. E. 1995. *Home and work: Negotiating boundaries through everyday life*. Chicago: University of Chicago Press.
- O'Keefe, D. J. 2002. *Persuasion: Theory and research* (2nd ed.). Thousand Oaks, CA: Sage.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. 1985. A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49: 41–50.
- Podsakoff, P. M., & Organ, D. W. 1986. Self-reports in organizational research: Problems and prospects. *Journal of Management*, 12: 531–544.
- Pugh, S. D. 2001. Service with a smile: Emotional contagion in the service encounter. *Academy of Management Journal*, 44: 1018–1027.
- Rafaeli, A. 1989. When cashiers meet customers: An analysis of the role of supermarket cashiers. *Academy of Management Journal*, 32: 245–273.
- Raudenbush, S. W., & Bryk, A. S. 2002. *Hierarchical linear models: Applications and data analysis methods*. Thousand Oaks, CA: Sage.
- Rothbard, N. P. 2001. Enriching or depleting? The dynamics of engagement in work and family roles. *Administrative Science Quarterly*, 46: 655–684.
- Rothbard, N. P., Phillips, K. W., & Dumas, T. L. 2005. Managing multiple roles: Work-family policies and individuals' desires for segmentation. *Organization Science*, 16: 243–258.
- Rupp, D. E., & Spencer, S. 2006. When customers lash out: The effects of customer interactional injustice on emotional labor and the mediating role of discrete emotions. *Journal of Applied Psychology*, 91: 971–978.
- Schwarz, N. 2002. Feelings as information: Moods influence judgments and processing strategies. In T. Gilovich, D. Griffin, & D. Kahneman (Eds.), *Heuristics and biases: The psychology of intuitive judgment*: 534–547. New York: Cambridge University Press.
- Sereno, K. K., & Hawkins, G. J. 1967. The effects of variations in speakers' nonfluency upon audience ratings of attitude toward the speech topic and speaker's credibility. *Speech Monographs*, 34: 58–64.
- Singer, J. D. 1998. Using SAS PROC MIXED to fit multilevel models, hierarchical models, and individual growth models. *Journal of Educational and Behavioral Statistics*, 24: 323–355.

- Sonnentag, S. 2003. Recovery, work engagement, and proactive behavior: A new look at the interface between nonwork 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.
- Sonnentag, S., & Zijlstra, F. R. H. 2006. Job characteristics and off-job activities as predictors of need for recovery, well-being, and fatigue. *Journal of Applied Psychology*, 91: 330–350.
- Staw, B. M., Sandelands, L. E., & Dutton, J. E. 1981. Threat-rigidity effects in organizational-behavior: A multilevel analysis. *Administrative Science Quarterly*, 26: 501–524.
- Tellegen, A. 1985. Structure of mood and personality and their relevance to assessing anxiety, with an emphasis on self-report. In A. H. Tuma & J. D. Maser (Eds.), *Anxiety and the anxiety disorders*: 681–706. Hillsdale, NJ: Erlbaum.
- Totterdell, P. 1999. Mood scores: Mood and performance in professional cricketers. *British Journal of Psychology*, 90: 317–332.
- Totterdell, P. 2000. Catching moods and hitting runs: Mood linkage and subjective performance in professional sports teams. *Journal of Applied Psychology*, 85: 848–859.
- Totterdell, P., & Holman, D. 2003. Emotion regulation in customer service roles: Testing a model of emotional labor. *Journal of Occupational Health Psychology*, 8: 55–73.
- Totterdell, P., Kellett, S., Teuchmann, K., & Brinder, R. B. 1998. Evidence of mood linkage in work groups. *Journal of Personality and Social Psychology*, 74: 1504–1515.
- Trougakos, J. P., Beal, D. J., Green, S. G., & Weiss, H. M. 2008. Making the break count: An episodic examination of recovery activities, emotional experiences, and positive affective displays. *Academy of Management Journal*, 51: 131–146.
- Watson, D., Clark, L. A., & Tellegen, A. 1988. Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54: 1063–1070.
- Watson, D., & Tellegen, A. 1985. Toward a consensual structure of mood. *Psychological Bulletin*, 98: 219–235.
- Wegge, J., van Dick, R., Fisher, G. K., West, M. A., & Dawson, J. F. 2006. A test of basic assumptions of affective events theory in call centre work. *British Journal of Management*, 17: 237–254.
- Weiss, H. M., & Beal, D. J. 2005. Reflections on affective events theory. In N. M. Ashkanasy, W. J. Zerbe, & C. E. J. Hartel (Eds.), *The effect of affect in organizational settings: Research in emotion in organizations*, vol. 1: 1–21. London: Elsevier.
- Weiss, H. M., & Cropanzano, R. 1996. Affective events theory: A theoretical discussion of the structure, causes, and consequences of affective experiences at work. In B. M. Staw & L. L. Cummings (Eds.), *Research in organizational behavior*, vol. 18: 1–74. Greenwich, CT: JAI.
- 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.
- Westman, M., & Eden, D. 1997. Effects of a respite from work on burnout: Vacation relief and fade-out. *Journal of Applied Psychology*, 82: 516–527.
- Wilk, S. L., & Moynihan, L. M. 2005. Display rule “regulators”: The relationship between supervisors and worker emotional exhaustion. *Journal of Applied Psychology*, 90: 917–927.
- Williams, K. J., & Alliger, G. M. 1994. Role stressors, mood spillover, and perceptions of work-family conflict in employed parents. *Academy of Management Journal*, 37: 837–868.
- Williams, K. J., Suls, J., Alliger, G. M., Learner, S. M., & Wan, C. K. 1991. Multiple role juggling and daily mood states in working mothers: An experience sampling study. *Journal of Applied Psychology*, 76: 664–674.

## APPENDIX A

### Details of HLM Analyses

We used three-level hierarchical models to test Hypotheses 1 through 3, with the SAS PROC MIXED procedure (Singer, 1998). For example, for Hypothesis 3 the model looks like the following:

Level 1 models, event-level:

$$\text{Employee affect subsequent to event}_{ijk} = \beta_{0jk} + \beta_{1jk}(CUST_{ijk} - CUST_k) + e_{ijk}, \quad (1)$$

where  $i$  represents the event level (level 1),  $j$  represents the day level (level 2),  $k$  represents the person level (level 3), and  $CUST$  stands for “perceived customer affective display.”  $(CUST_{ijk} - CUST_k)$  represents person-mean-centered perceived customer affective display (the difference between a person’s average perceived customer affective display,  $CUST_k$ , and the perceived customer affective display at this particular event  $CUST_{ijk}$ ; or within-person effects in perceived customer affective display).

Level 2 models, day level:

$$\beta_{0jk} = \gamma_{00k} + \gamma_{01k}(START_{jk} - START_k) + r_{0jk}, \quad (2a)$$

$$\beta_{1jk} = \gamma_{10k}. \quad (2b)$$

*START* stands for “start-of-workday mood” and  $(START_{jk} - START_k)$  represents person-mean-centered start-of-workday mood (the difference between a person’s average start-of-workday mood,  $START_k$ , and their start-of-workday mood on this particular day,  $START_{jk}$ ; or within-person effects in start-of-workday mood).

Level 3 models, person level:

$$\gamma_{00k} = \pi_{000} + \pi_{001}CUST_k + \pi_{002}START_k + \pi_{003}LOCATION_k + u_{00k}. \quad (3)$$

Controlling for  $CUST_k$  in the above model accounts for between-person variance in perceived customer affective display, and likewise controlling for  $START_k$  accounts for between-person variance in start-of-workday mood.

For simplicity, the above models do not separate mood and affectivity into positive and negative. However, our analysis does separate them.

Substituting, the tested model for Hypothesis 3 looks like this:

$$\begin{aligned} &EMPLOYEE\ AFFECT\ SUBSEQUENT\ TO\ EVENTS_{ijk} \\ &= \pi_{000} + \pi_{001}CUST_k + \pi_{002}START_k + \pi_{003}LOCATION_k \\ &+ \pi_{010}(START_{jk} - START_k) + \pi_{100}(CUST_{ijk} - CUST_k) \\ &+ e_{ijk} + r_{0jk} + u_{00k}, \quad (4) \end{aligned}$$

where the subscripts denote the level of analysis of each variable (e.g., 001 is the person level, 010 is the day level, and 100 is the event level).

For Hypotheses 4a and 4b, for the analyses using productivity as the dependent variable, we have two levels

of data: day and person. These models are constructed in a similar way with employee mood aggregated to the daily level and covariates at both the day and person level included in the models. There is no event level for these analyses. However, for the analyses using performance quality, we used a three-level model similar to the one described above, only here our levels were call nested within day nested within person.



**Nancy P. Rothbard** (nrothbard@wharton.upenn.edu) is the David Pottruck Associate Professor of Management at the Wharton School of the University of Pennsylvania. She received her Ph.D. in organizational behavior and human resource management from the University of Michigan. Her research focuses on how factors outside the workplace influence people’s ability to become fully engaged with their work. She has studied the spillover of mood and emotion from nonwork roles to the work role and how it can be enriching or depleting. She has also examined how people cope with these potential spillovers by segmenting work and nonwork roles.

**Steffanie L. Wilk** (wilk@fisher.osu.edu) is an associate professor of management and human resources at The Ohio State University. She received her Ph.D. from the Industrial Relations Center at the University of Minnesota. Her research interests include occupational mobility patterns of individuals in the labor force, employee burnout and turnover, the emotional labor of service workers, and the relationship between human resource practices and organizational strategy. Her recent research has focused on the experiences and work outcomes of call center workers.

