Distinguishing Affective and Non-Affective Reactions to Daily Events

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ABSTRACT   The study of daily events has been dominated by a focus on affective reactions to daily events. Although informative, this research needs to be complemented by research on non-affective and cognitive reactions to events. Although daily events are certainly related to how people feel, they are also related to how people think, particularly about themselves. The present article presents the results of a series of studies examining relationships between daily events and both affective and non-affective states. These results suggest that although affective and non-affective reactions to daily events may covary (e.g., when people feel badly, they may think more poorly about themselves and vice versa), this co-variation is not perfect. Non-affective states covary with daily events above and beyond the covariation between events and affect, and affective states covary with events above and beyond the covariation between events and non-affective states.

An important focus of research on within-person variability has been the within-person covariation between daily events and daily psychological states. Such research stands in contrast to research on the impact of major life events (e.g., the death of a loved one) in that, as suggested by the descriptor, daily events consist of the mundane,

recurring events that constitute the everyday lives of most people. Researchers have been interested in daily events for various reasons. Some have examined reactions to daily events in and of themselves, and others have examined individual differences in reactions to daily events.

Regardless of the specific focus of a study, the bulk of research on reactions to daily events has operationally defined such reactions in terms of affect (or mood), approaches that will be labeled *affect-based* (Nezlek & Plesko, 2003). This dominance is reflected by the fact that many of the articles in this special issue that concern reactions to daily events define such reactions in affective terms. Although it is not entirely clear why daily events studies emphasize affective reactions, much of the research on daily events has been informed by Eysenck's model of personality (e.g., Eysenck & Eysenck, 1985) and by Lazarus and colleagues' extensive work on daily stress (e.g., Kanner, Coyne, Schaefer, & Lazarus, 1981), and both of these models focus on affective reactivity. Moreover, much of the initial research on daily events, particularly that of Stone and colleagues (e.g., Stone & Neale, 1982), had a behavioral medicine focus that included emphases on cardiovascular and immunological functioning, functions that were presumed to be related to stress. No doubt the emphasis on daily affective reactions was also bolstered by the influential work of Clark and Watson (1999), who proposed that personality can largely be explained in affective terms.

In parallel, and garnering less attention, is research on reactions to daily events relying on a somewhat different conceptual framework. This research, typified by Butler, Hokanson, and Flynn (1994), operationally defines reactions to daily events in terms of changes in variables such as self-esteem, approaches that will be labeled *self-based* (Nezlek & Plesko, 2003). The conceptual framework springs from research on depression with the underlying notion that more depressed people have more unstable self-evaluations than the less or not depressed, and this instability should be reflected in greater reactivity. Interestingly, research that has concerned self-based reactions to daily events has tended to examine both positive and negative events. This may partially reflect the underlying model, which does not distinguish reactivity to positive and negative events as sharply as models designed to understand stressful reactions to negative events.

Although he is not always cited, work on self-based models owes much to Carl Rogers (1961) who discussed reactivity to events. In his theory, Rogers emphasized conditions of worth—the extent to which environmental cues or feedback such as daily events influence people's self-esteem or self-concept, the core of personality according to Rogers. It is possible that the greater popularity among personality and social psychologists of affect- over self-based approaches reflects the broader empirical base concerning Eysenck's model compared to Rogers's and the greater reliance of self-based approaches on constructs traditionally identified more closely with clinical psychology rather than personality theory per se.

Regardless of the reason, affect-based approaches have dominated the study of daily events, leaving unanswered questions about a potential myriad of important psychological states that might be influenced by, or influence, daily events. This sense that there is a meaningful gap in research on daily events due to an emphasis on daily affect is based on the assumption that although various constructs may have affective components, they cannot be explained solely in affective terms. For example, Weary and Edwards (1994) introduced the concept of causal uncertainty—the extent to which people feel that they understand why events in their lives occurred as they did. Although it is easy to understand how causal uncertainty and affect would covary (e.g., higher uncertainty might be associated with greater anxiety or NA), it is difficult to understand how one construct could subsume the other. By definition, causal uncertainty is cognitively focused: It refers to how well people understand the reasons for events. In support of this specific distinction, Nezlek and Gable (2001) found that causal uncertainty covaried with negative daily events after controlling for the covariation between events and anxiety.

This article summarizes the results of a series of studies illustrating the general principle underlying this specific example. In each study, participants described the events that occurred each day, they provided measures of their daily affective states, and they provided measures of non-affective states. The data were analyzed so that the within-person covariation between daily events and non-affective states could be examined controlling for daily affect, and the within-person covariation between daily events and affect states could be examined controlling for the variability in non-affective states. The underlying hypothesis was straightforward: Affective and non-affec-

tive daily states would covary with daily events both independently and jointly. The relative lack of theory and research on this topic made it difficult to make more specific predictions about which states would vary independently and jointly.

Unfortunately, there is no agreement regarding what constructs should be included when examining daily variability in psychological states. The wide variety of individual differences that have been studied over the years (at the trait level) provides a bewildering, nearly endless, set of options. The selection of constructs was guided in part by practical criteria. First, would it be reasonable to expect that there would be daily variability in a construct and that such variability would be related to daily events? Second, would it be reasonable to expect that such covariation would be independent of the covariation between events and affect? Third, is there any empirical support for the utility of conceptualizing daily variability in terms of a construct?

On this basis, four sets of non-affective constructs were chosen. The first, labeled *self-evaluation,* consisted of two measures: self-esteem and depressogenic adjustment. The depressogenic adjustment measure was based on Beck's (1967) triad theory. Both measures have been used successfully in the past (e.g., Nezlek & Gable, 2001; Nezlek & Plesko, 2003). The second, labeled *self-focused thinking*, consisted of three measures: reflection and rumination, based on Trapnell and Campbell's (1999) work, and public self-consciousness, based on Feningstein, Scheier, and Buss (1975). Daily variability in self-focused thinking was examined by Nezlek (2002). The third construct, labeled *cognitive overload*, is a new construct introduced by Nezlek and Groff (2004), and it refers to excessive cognitive demands, demands that do not necessarily include self-focused thought (e.g., too much work to think about). The fourth set of non-affective constructs, labeled *control*, was based on Deci and Ryan's (1985) research on causality orientation, and such measures have been used successfully in the past (e.g., Nezlek & Gable, 2001).

In addition to practical considerations, these non-affective constructs were chosen because they represent important domains of psychological theory and research (albeit at the trait or person level). Self-evaluation is the primary focus of a considerable body of research. For example, self-esteem is probably one of the most commonly studied topics in personality and social psychology. Similarly, self-relevant thinking is also a widely researched topic. How

and in what ways people think about themselves is central to a wide variety of theories and explanations of human thought, behavior, and feeling. Finally, perceived control over the environment is also a widely researched topic, and individual differences in perceived control have been associated with a host of different outcomes.

To provide a rigorous test of the primary hypothesis, affect was measured broadly, using four measures, each representing a quadrant of the affective circumplex defined by the two dimensions of valence and activation (e.g., Feldman Barrett & Russell, 1998). These were positive active emotions (PA) such as happiness, positive deactive emotions (PD) such as relaxedness, negative active emotions (NA) such as anxiousness, and negative deactive emotions (ND) such as sadness.

Daily events can be conceptualized along various dimensions, and for present purposes events were differentiated on the basis of whether they were social- and achievement-related. Such a distinction has a long history in psychology ranging from Freud's "Arbeit und Liebe" (Work and Love), to Bales's socioemotionality versus instrumentality (Bales, 1950), to more recent work on communion versus agency. The universality of such a distinction across time and theoretical perspectives suggests that social and achievement domains represent important, perhaps fundamental, dimensions of people's day-to-day lives. It is important to recognize that the use of circumplex-based measure of affect, taking multiple measures of non-affective states, and distinguishing social from achievement events allows for a more detailed analysis of the covariation between daily events and daily states than that allowed by the data collected in many studies.

METHOD

This article describes the results of seven studies that used a similar method. In each study, participants (all college students taking introductory psychology who participated in fulfillment of a class requirement) provided data describing the events that occurred each day; they also described their daily psychological states. In each study participants, who provided data via a website, were told to provide data before retiring for the evening. Data were collected on a daily basis for 2–3 weeks. In each study, some data for some participants were deleted because they were not recorded at an acceptable time, and a small number of daily reports

were retained that were provided by early the next morning, i.e., before 10 a.m.

Due to the similarity of the measures used across these studies, the data for all studies were combined for analysis. Although there was considerable overlap among the studies in the states that were measured each day, there were some differences, and so the sample sizes (i.e., numbers of participants and days) vary from analysis to analysis. Across individual studies, the maximum was 153 participants and 3,083 days, and the minimum was 54 participants and 644 days. Across analyses of different measures, sample sizes ranged between 558 and 735 participants and between 8,079 and 11,153 days; sample sizes are presented for each analysis.

Daily measures of non-affective states were created by rewording selected items from trait-level measures, and for each daily measure, between two and four items were used. These state measures were selected to represent four categories: self-evaluation, self-focused thinking, cognitive demand, and perceived control over the environment; how each daily state was measured is described in the section presenting the analyses of that state.

Daily affect was measured using an affective circumplex consisting of four quadrants, a crossing of positive-negative and active-deactive (e.g., Feldman Barrett & Russell, 1998). In six of the seven studies, positive active affect (PA) was measured in terms of how enthusiastic, happy, alert, proud, and excited participants felt during the day; positive deactive affect (PD) was measured in terms of how calm, peaceful, satisfied, relaxed, and content they felt; negative active affect (NA) was measured in terms of how nervous, embarrassed, upset, stress, and tense they felt; and negative deactive affect (ND), was measured in terms of how sluggish, sad, bored, depressed, and disappointed they felt. In one of the studies, $N = 153$, $n = 3038$, the measure of PA also included the terms *active, energetic*, and *interested*, the measure of PD did not include *peaceful* and *content*, the measure of NA also included *guilty, afraid, angry, disgusted,* but did not include *stressed* and *tense*, and the measure of ND did not include *disappointed*. All state (daily) responses were made using 7-point scales.

The same measure of daily events, adopted from the Daily Events Survey (DES; Butler et al., 1994), was used in all studies. The DES was designed to include the events that commonly occur in the daily lives of collegians. Participants indicated which of 22 events (phrased for collegians) occurred each day, and if an event occurred, they rated how important the event was on a 1–4 scale. The 22 events included 12 positive and 10 negative events, with equal numbers of social and achievement events. These events included: "Went out to eat with a friend/date" (social positive), "Tried to do homework and couldn't understand it" (achievement negative), "Did well on a school or work task (e.g. test,

assignment, job duty)'' (achievement positive), ''Had plans fall through to spend time with someone special'' (social negative). In addition, four items, each representing a combination of positive-negative and social-achievement, were created to measure other events that might have occurred. For example, other positive social events were measured using the item ''Had other type of pleasant event (not listed above) with friends, family, or date.''

For each day, for each participant, ratings of events were averaged to create event composite scores. One score represented all positive events, one represented all negative events, and a composite score was created for each of the four subcategories—positive social, negative social, positive achievement, and negative achievement. Composite scores were used because they had more desirable psychometric properties (e.g., less heterogeneity of variances across participants) than frequency counts (the number of events that occurred). Nevertheless, the results of analyses of frequency counts were functionally equivalent to the present results.

RESULTS

The results are organized in terms of the four categories of non-affective states described above (self-evaluation, self-focused thinking, cognitive demand, and perceived control over the environment), and each category of measures was analyzed with a similar set of analyses. The primary goal of these analyses was to determine how independently affective and non-affective measures covaried with daily events. In some analyses, non-affective measures were the dependent variables and daily events (and mood) were the independent variables, whereas, in other analyses, daily moods were the dependent variables and daily events (and non-affective measures) were the independent variables.

The independence of the covariation of affective and non-affective measures was inferred from differences in the significance of coefficients across different models. For example, assume that daily self-esteem (SE) covaries positively with daily social events—the more positive events in a day, the more positively people evaluate themselves. Assume also that daily PA covaries positively with daily social events—the more positive events in a day, the more positively people feel. If daily PA is added to the model predicting daily SE, and the coefficient for positive events becomes nonsignificant and the coefficient for daily PA remains significant, it can be concluded

that (on average) the relationship between daily positive social events and daily SE is mediated by daily PA. Alternatively, if daily PA is added to the model and the coefficient for daily events remains significant, it can be concluded that (on average) some part of the covariation between daily positive social events and daily SE is independent of the covariation between events and PA. The parenthetical phrase "on average" is included because the coefficients estimated by these analyses were mean within-person coefficients.

The data comprised what is referred to as a multilevel data structure in that observations at one level of analysis (days) were nested within another level of analysis (people), and so the data were analyzed with a series of multilevel random coefficient models using the program HLM (Raudenbush, Bryk, Cheong, & Congdon, 2000). Multilevel random coefficient modeling (MRCM) was used instead of ordinary-least-squares (OLS) methods because MRCM provides better parameter estimates than OLS methods. Using MRCM to analyze daily event studies is discussed in Nezlek (2001).

Within the terminology of multilevel modeling, the primary analyses were two-level models. Measures for days were nested within people, and for each person, coefficients were estimated representing the within-person (or day-to-day) relationships between daily events and various constructs. Measures of each type of state were analyzed separately (Models 1 and 3) and in combination. In some of the combined analyses (Model 2), a non-affective measure was the dependent variable, and the four affective measures (along with events) were independent variables. These analyses estimated the within-person covariation between daily events and non–affective measures controlling for day to day differences in affective measures.

In other combined analyses (Model 4), individual affective measures were the dependent variables and individual non-affective measures (along with events) were independent variables. In some instances, more than one non-affective measure was included. These analyses estimated the covariation between affective measures and events controlling for differences in non-affective measures. This analytic strategy is represented by the following set of equations.

$$\text{Model 1: Non-Aff}_{ij} = \beta_{0j} + \beta_{1j}(\text{PosSoc}) + \beta_{2j}(\text{NegSoc}) \\ + \beta_{3j}(\text{PosAch}) + \beta_{4j}(\text{NegAch}) + r_{ij}.$$

$$\text{Model 2: Non-Aff}_{ij} = \beta_{0j} + \beta_{1j}(\text{PosSoc}) + \beta_{2j}(\text{NegSoc})$$
$$+ \beta_{3j}(\text{PosAch}) + \beta_{4j}(\text{NegAch}) + \beta_{5j}(\text{PA})$$
$$+ \beta_{6j}(\text{PD}) + \beta_{7j}(\text{NA}) + \beta_{8j}(\text{ND}) + r_{ij}.$$

$$\text{Model 3: Aff}_{ij} = \beta_{0j} + \beta_{1j}(\text{PosSoc}) + \beta_{2j}(\text{NegSoc}) + \beta_{3j}(\text{PosAch})$$
$$+ \beta_{4j}(\text{NegAch}) + r_{ij}.$$

$$\text{Model 4: Aff}_{ij} = \beta_{0j} + \beta_{1j}(\text{PosSoc}) + \beta_{2j}(\text{NegSoc}) + \beta_{3j}(\text{PosAch})$$
$$+ \beta_{4j}(\text{NegAch}) + \beta_{5j}(\text{Non-Aff}) + r_{ij}.$$

In these models, Non-Aff$_{ij}$ and Aff$_{ij}$ are daily measures of non-affective and affective constructs (each construct analyzed separately) for person j on day i. For each of these models, β_{0j} is a random coefficient representing the mean of y for person j (across the i days for which each person provided data), $\beta_{1j}(\text{PosSoc})$ is a random coefficient (referred to as a slope to distinguish it from an intercept) for positive social events, $\beta_{2j}(\text{NegSoc})$ is a random coefficient (slope) for negative social events, $\beta_{3j}(\text{PosAch})$ is a random coefficient for positive achievement events, $\beta_{4j}(\text{NegAch})$ is a random coefficient for negative achievement events, and r_{ij} represents the day level error, and the variance of r_{ij} constitutes the day level residual (or error) variance. All slopes in all analyses were modeled as random effects. Event scores were entered group-mean centered, which meant that individual differences in event scores did not contribute to the estimate of event slopes.

In Model 2, the PA, PD, NA, and ND coefficients represent the slopes for daily positive active affect (e.g., happy), daily positive deactive affect (e.g., relaxed), daily negative active affect (e.g., nervous), and daily negative deactive affect (e.g., sad). In Model 4, the Non-Aff coefficient(s) represents the slope for the non-affective variable(s) for which the analysis is controlling. For the analyses of self-evaluation, self-focused thinking, and control, there were 2, 3, and 2 non-affective predictors, respectively. In the analyses of perceived control, only two event measures were included, positive and negative, for either social or achievement.

For the sake of thoroughness, coefficients describing relationships between affective and non-affective measures without the inclusion of events were also estimated. These coefficients were estimated using models similar to those described above. Each non-affective

measure was regressed onto the four measures of affect (Model 5), and each measure of affect was regressed onto one of the set of non-affective measures being considered (Model 6). For the analyses of self-evaluation, self-focused thinking, and control, there were 2, 3, and 2 non-affective predictors, respectively. These relationships are not the focus of this article, however, and so they are not discussed in any detail.

$$\text{Model 5: Non-Aff}_{ij} = \beta_{0j} + \beta_{1j}(\text{PA}) + \beta_{2j}(\text{PD}) + \beta_{3j}(\text{NA}) + \beta_{4j}(\text{ND}) + r_{ij}.$$

$$\text{Model 6: Aff}_{ij} = \beta_{0j} + \beta_{1j}(\text{Non-Aff}) + r_{ij}.$$

For each of the four categories of non-affective states, two tables of results are presented. One table summarizes analyses in which non-affective states were dependent variables, and the other summarizes results in which measures of daily affect were the dependent variables. For each dependent variable, two sets of coefficients are presented, one labeled *Separate,* and the other labeled *Combined.* The *Separate* coefficients come from analyses in which only one set of predictors was used, whereas the *Combined* coefficients come from analyses that used two sets of predictors. For example, in the analysis of daily self-esteem, the *Separate* coefficients for events are taken from Model 1 described above, the *Separate* coefficients for affect come from Model 5, and the *Combined* coefficients come from Model 2. For measures of daily affect, *Separate* coefficients are from Models 3 and 6, and *Combined* coefficients are from Model 4.[1]

Self-Evaluation

Daily self-evaluation was defined in terms of two constructs, self-esteem and depressogenic adjustment. Self-esteem was measured

1. For the sake of completeness, a series of analyses was done to estimate the within-person correlations between the four affect measures. These correlations were based on estimates of the shared variance between two measures and took into account between-person differences in means (Nezlek, 2001). The estimated correlations between PA and PD, NA, and ND were .67, − .43, and − .55, respectively, the estimated correlations between PD and NA and ND, were − .59 and − .51, respectively, and between NA and ND, the estimated correlation was .60.

using items 3, 6, 7, and 10 of the Rosenberg Self-Esteem scale (Rosenberg, 1965) with response scales reworded to refer to how participants felt that day: "Today . . . , all in all, I was inclined to feel like a failure"; "I had a positive attitude toward myself"; "on the whole, I was satisfied with myself"; and "I thought I was no good at all." Daily self-esteem was operationalized as the mean response to these items. Daily depressogenic adjustment was measured by three items representing the elements of Beck's cognitive triad (Beck, 1967): (1) negative view of self, "Overall, how positively did you feel about yourself today?" (2) negative view of life in general, "Thinking of your life in general, how well did things go today?" and (3) negative view of the future, "How optimistic are you about how your life (in general) will be tomorrow?" Respondents answered these questions using 7-point bipolar scales. (See Nezlek & Gable, 2001, and Nezlek & Plesko, 2003, for discussions of the validity and reliability of these measures.) Seven hundred and thirty-five participants contributed 11,153 days of data for these analyses.

First, relationships between daily events and each measure of self-evaluation were examined, and these results are presented in Table 1. As can be seen from the coefficients presented in the table, positive event scores (both social and achievement) were positively related to self-evaluation, and negative event scores (both social and achievement) were negatively related. When the four measures of daily affect were included as predictors, although event score coefficients were smaller than they were in the original analysis, all of the coefficients remained significant. This indicates that measures of self-evaluation covaried with daily events independently of the covariation between events and affect.

In the second set of analyses, relationships between daily events and each measure of daily affect were examined, and these results are presented in Table 2. As can be seen from the coefficients presented in the table, positive event scores (both social and achievement) were positively related to positive affect (both active and deactive) and were negatively related to negative affect (both active and deactive), except for the relationship between NA and positive achievement events, which was not significant. The reverse relationships existed for negative event scores. When the two measures of daily self-evaluation were included as predictors, event score coefficients were smaller than they were in the original analysis, and most, but not all, of the coefficients remained significant.

Table 1

Relationships Between Self-Evaluation and Daily Events With and Without Controlling for Daily Affect

Measure	Analysis	Intercept	Social Events		Achievement Events		Affect			
			Positive	Negative	Positive	Negative	PA	PD	NA	ND
Self-esteem	Separate	5.49	.26	−.35	.19	−.42	.21	.16	−.17	−.18
	Combined		.04	−.11	.08	−.18	.18	.15	−.14	−.15
Triad	Separate	5.24	.39	−.39	.23	−.43	.31	.16	−.16	−.20
	Combined		.14	−.11	.09	−.17	.25	.14	−.13	−.17

Note. For this and all other tables, all coefficients significantly different from 0 at $p<.01$ or beyond, except those accompanied by[x], which were not significantly different from 0, and those accompanied by[a], which were significantly different from 0 at $p<.05$.

Table 2
Relationships Between Daily Affect and Daily Events With and Without Controlling for Daily Self-Evaluation

Affect	Analysis	Intercept	Social		Achievement		SE	Tri
			Positive	Negative	Positive	Negative		
PA	Separate	4.08	.52	− .24	.30	− .28	.27	.50
	Combined		.30	− .00^x	.16	.00^x	.25	.21
PD	Separate	4.17	.39	− .32	.15	− .41	.34	.44
	Combined		.17	− .04	.01^x	− .13	.31	.37
NA	Separate	2.78	− .18	.54	.01^x	.48	− .32	− .31
	Combined		− .02	.34	.11	.26	− .26	− .25
ND	Separate	2.82	− .23	.49	− .16	.39	− .30	− .38
	Combined		− .04	.28	− .04	.14	− .26	− .32

These results suggest that although daily affect covaried with daily events independently of the covariation between events and self-evaluation, self-evaluation mediated some of the zero-order relationships between events and affect. As indicated by the nonsignificant coefficients for negative events (both social and achievement) in the analyses of PA that included self-evaluation, self-evaluation fully mediated the relationships between PA and negative social and achievement events that were found in the initial analyses of affect. Similarly, self-evaluation fully mediated the relationship between PD and positive achievement events that was found in the initial analyses. Moreover, there was considerable partial mediation for other combinations of affect and event type.

The unexpected suppression effect for self-evaluation in the analysis of NA was particularly interesting. When self-evaluation was not included as a predictor, NA and positive achievement events were not related. When self-evaluation was included, a *positive* relationship was found. That is, after controlling for their positive relationship with self-evaluation, positive achievement events were associated with increased NA. Success, apparently, has its costs.

Taken together, these results suggest that affect and self-evaluation covary independently and jointly with daily events. To the extent that questions of precedence are important, the results suggest that in some ways, changes in self-evaluation lead to changes in

affect rather than the reverse. That is, self-evaluation fully mediated relationships between some types of events and some measures of affect, whereas no measure of affect fully mediated any relationship between events and either measure of self-evaluation. Nevertheless, there was also meaningful partial mediation in both directions, suggesting that causal relationships between the two constructs may be bi-directional.

Self-Focused Thinking

Daily self-focused thinking was defined in terms of three constructs: reflection, rumination, and public self-consciousness. Respondents answered questions concerning their self-focused thinking using 7-point bipolar scales with endpoints labeled "not at all" and "very much" and a midpoint (4) labeled "a moderate amount." Five hundred and eighty-two participants contributed 8,079 days of data for these analyses.

The reflection and rumination measures were based on Trapnell and Campbell's (1999) research on private self-consciousness. Trapnell and Campbell (1999) provided compelling evidence that it is important to distinguish two types of private self-conscious thinking—reflection and rumination. They defined reflection as "intellectual self-attentiveness," whereas rumination was defined as "neurotic self-attentiveness." They introduced the rumination-reflection distinction in part to resolve the self-absorption paradox—the fact that increased self-focused attention has been found to be associated with both positive and negative outcomes.

Daily rumination and reflection were each measured with three items, all of which were based on trait items from Trapnell and Campbell's scale and began with the phrase, "How much today did you . . . " The three rumination items were: "ruminate or dwell on things that happened to you," "play back over in your mind how you acted in a past situation," and "spend time rethinking things that are over and done with." The three reflection items were: "think about your attitudes and feelings," "think about the nature and meaning of things," and "think introspectively or self-reflectively, i.e., about yourself and what you are like." Daily rumination and daily reflection were operationalized as the mean of the three responses for each scale. (See Nezlek & Groff, 2004, for a discussion of the reliability and validity of these measures.)

The state-level analog of public self-consciousness was measured using variants of three items taken from the public subscale of the Self-Consciousness Scale (Feningstein, Scheier, & Buss, 1975). "How much today did you . . . " "think about what other people thought of you," "worry about making a good impression," and "think about your physical appearance (clothes, grooming, etc.)." Daily public self-consciousness was operationalized as the mean response to these three items. (See Nezlek, 2002, for a discussion of the reliability and validity of a similar measure consisting of the first and second items.)

These data were analyzed with a series of models similar to those used for analyzing self-evaluation. Individual measures of self-focused thinking were regressed onto events without, and then with, daily affect, and the four measures of affect were regressed onto events without, and then with, measures of self-focused thinking. The results of these analyses are summarized in Tables 3 and 4.

Relationships among these constructs varied considerably as a function of the domain of events being considered (social or achievement) and the valence of affect (positive or negative). As can be seen from the data in Table 3, the analyses indicated that social event scores (both positive and negative) were positively related to all three types of self-focused thought and that this covariation was independent of the covariation between affect and events. When affect was included in the models predicting self-focused thinking, all the coefficients describing relationships between social events and self-focused thinking were significant. In fact, there was some evidence of suppression. In the initial analyses (i.e., without affect), the coefficient between daily rumination and positive social events was not significant ($\beta_{1j} = .00$), whereas when affect was included, it was significant ($\beta_{1j} = .13$).

As can be seen from the data in Table 3, the analyses produced a markedly different pattern of results for achievement events. First, all three types of self-focused thinking covaried less strongly with achievement events than they did with social events, both positive and negative (all $ps < .01$). Second, the analyses indicated that whatever relationships there were between self-focused thinking and achievement events (both positive and negative) were mediated by negative affect (both NA and ND). When daily affect was included in the model, all but one of the coefficients between achievement events and self-focused thinking was nonsignificant, and the

Table 3

Relationships Between Daily Self-Focused Thinking and Daily Events With and Without Controlling for Daily Affect

Measure	Analysis	Intercept	Social Events		Achievement Events		Affect			
			Positive	Negative	Positive	Negative	PA	PD	NA	ND
Rumination	Separate	3.38	.00ˣ	.63	−.06	.26	.03ˣ	−.01ˣ	.28	.31
	Combined		.13	.33	−.01ˣ	.00ˣ	.00ˣ	−.02ˣ	.25	.27
Reflection	Separate	3.74	.12	.41	.01ˣ	.12	.09	.05	.14	.25
	Combined		.16	.24	.02ˣ	.01ˣ	.04	.05	.11	.22
Public SC	Separate	3.99	.29	.24	.05	.07	.24	.00ˣ	.11	.09
	Combined		.23	.18	.00ˣ	.02	.17	.00ˣ	.11	.07

Table 4
Relationships Between Daily Affect and Daily Events With and Without Controlling for Daily Self-Focused Thinking

Affect	Analysis	Intercept	Social Events		Achievement Events		Ref	Rum	Pub
			Positive	Negative	Positive	Negative			
PA	Separate	4.08	.55	−.22	.29	−.26	.03[x]	−.20	.23
	Combined		.50	−.17	.27	−.23	.00[x]	−.12	.14
PD	Separate	4.16	.41	−.30	.14	−.43	.05	−.24	.13
	Combined		.38	−.22	.12	−.40	.04	−.16	.06
NA	Separate	2.93	−.23	.53	.04	.54	.01[x]	.29	−.03
	Combined		−.23	.37	.05	.48	.00[x]	.21	.00[x]
ND	Separate	2.73	−.26	.54	−.18	.40	.07	.26	−.09
	Combined		−.26	.39	−.17	.33	.07	.18	−.04

coefficient that remained significant (between public self-consciousness and negative achievement) was small ($\beta_{4j} = .02$).

The results of analyses of measures of daily affect (see Table 4) led to similar conclusions.[2] First, and most important, all coefficients between events and affect remained significant when daily self-focused thinking was included. In fact, many of these coefficients were relatively unchanged in magnitude when daily self-focused thinking was included. Second, when events and self-focused thinking were included together as predictors of daily affect, relationships between measures of self-focused thinking and affect were weak and inconsistent.

Taken together, these analyses allow two broad conclusions. First, it appears that self-focused thinking (reflection and public self-consciousness) covaries positively with social events relatively independently from the covariation between social events and affect. Second, it appears that negative affect (both active and deactive) mediates the positive relationships between self-focused thinking and achievement events, although it should be noted that relationships

2. As might be expected from the overlap in samples, coefficients describing relationships between events and affect without the inclusion of self-focused thinking were similar to those discussed previously and will not be described.

between self-focused thinking and achievement events are noticeably weaker than those between self-focused thinking and social events.

Daily Cognitive Overload/Demand

Daily cognitive demand was defined in terms of a construct labeled *cognitive overload* (Nezlek & Groff, 2004). According to Nezlek and Groff, "Cognitive overload occurs when people have so much on their minds that their ability to think clearly or think about what they want or need to think about is impaired." The construct is similar to the "cognitive busyness" manipulation used in laboratory studies of social cognition and to some aspects of different measures of stress. It is important to note that cognitive overload is not synonymous with self-focused thinking. People can experience overload because they have too much to think about that is not self-focused. This issue is discussed in more detail in Nezlek and Groff (2004), who found that overload was not related to reflection but was related to rumination at both the between- and within-person levels.

Daily cognitive overload was measured using four items adapted from the trait measure of the construct: "Today, my mind was so busy/full that I could not think about the future; I could only do and think about what was needed to get done at the moment"; "Today, I felt I had no time to think about things dealing with myself"; "Today, my mind was uncluttered, and I could think about the things I needed to"; and "Today, my head was so full of thoughts that it felt like I was not thinking at all and that I was walking around in a cloud or daze." Respondents answered these questions using 7-point bipolar scales with endpoints labeled "Uncharacteristic of me today" and "Very characteristic of me today, "and a midpoint (4) labeled "Neither characteristic nor uncharacteristic of me today." Daily cognitive overload was operationalized as the mean of these four responses. Six hundred and eleven participants contributed 9,184 days of data for these analyses. These data were analyzed with a series of models similar to those used previously, and the results of these analyses are summarized in Tables 5 and 6.

The initial analyses of daily cognitive overload found that overload was positively related to negative social events and to achievement events (both positive and negative) and was negatively related to positive social events. When affect was included, the positive relationships with achievement events and the negative relationship

Table 5
Relationships Between Daily Cognitive Demand and Daily Events With and Without Controlling for Daily Affect

		Social Events		Achievement Events		Affect			
Analysis	Intercept	Positive	Negative	Positive	Negative	PA	PD	NA	ND
Separate	3.15	− .21	.13	.12	.53	− .03[x]	− .25	.26	.02[x]
Combined		− .06	− .09	.17	.29	− .04[a]	− .23	.23	.01[x]

with positive social events remained significant, indicating that daily overload covaried with these types of events above and beyond the covariation between overload and affect.

Including affect, however, led to a reversal of the relationship between overload and negative social events, which went from a significant coefficient of .13 to a significant coefficient of − .09. Follow-up analyses that included only one measure of affect at a time suggested that this effect was due to the inclusion of NA in the model. When the negative affect (anxiety or tension) that can be created by negative social events is controlled, such events (i.e., social contact) tend to reduce people's sense of cognitive overload. Analyses of daily

Table 6
Relationships Between Daily Affect and Daily Events With and Without Controlling for Daily Cognitive Demand

Affect	Analysis	Intercept	Social Events		Achievement Events		Cog
			Positive	Negative	Positive	Negative	
PA	Separate	4.07	.50	− .24	.30	− .27	− .23
	Combined		.46	− .21	.31	− .19	− .15
PD	Separate	4.14	.37	− .32	.15	− .40	− .35
	Combined		.31	− .27	.18	− .24	− .27
NA	Separate	2.78	− .17	.53	.00[x]	.47	.33
	Combined		− .12	.49	− .03[a]	.34	.25
ND	Separate	2.85	− .21	.46	− .15	.37	.22
	Combined		− .18	.43	− .16	.29	.14

mood as dependent measures (Table 6) did not suggest that overload mediated any of the relationships between mood and events.

Taken together, these results suggest that daily overload covaries with daily achievement events and daily positive social events independent of the covariation between these types of events and affect. In contrast, for negative social events the relationships were more complex, with NA playing an indirect role.

Perceived Control

Perceived control over one's life was measured using four questions based on the control subscale of the General Causality Orientation Scale (GCOS; Deci & Ryan, 1985). Two questions concerned social activities, "Thinking back on your day today in terms of your relationships with others and the social events that occurred . . . ," and two others concerned achievement, "Thinking back on your day today in terms of nonsocial areas of performance (e.g., school work, sports, fitness, etc.)." For each of the two domains (social and achievement) two questions were asked. One concluded with the question, "To what extent did you feel that you had a choice about what you did and to what extent did things happen the way you wanted them to happen?" and the other concluded with, "To what extent were you able to control the outcomes of these events?" Daily perceived control over the social and achievement domains was represented by the mean response to the two questions concerning social and achievement events, respectively. See Nezlek and Gable (2001) for a discussion of the validity and reliability of this measure. Five hundred and fifty-seven participants contributed 8,580 days of data for these analyses. These data were analyzed with a series of models similar to those used previously, and the results of these analyses are summarized in Tables 7 and 8.

The initial analyses of perceived control found that control was positively related to positive event scores (both social and achievement) and negatively related to negative event scores (both social and achievement). People felt more control when good things happened to them and less in control when bad things happened. When affect was included, these relationships were diminished somewhat, but all remained statistically significant. This indicates that perceived control covaried with daily events independently of the covariation between events and affect. Interestingly, the analyses that included

Table 7

Relationships Between Perceived Control Over Events and Daily Events With and Without Controlling for Daily Affect

Measure	Analysis	Intercept	Social Events		Achievement Events		Affect			
			Positive	Negative	Positive	Negative	PA	PD	NA	ND
Social	Separate	4.92	.32	−.24			.11	.12	−.06	−.03[x]
	Combined		.23	−.12			.07	.11	−.07	.00[x]
Achievement	Separate	4.66			.17	−.20	.13	.12	−.08	−.02[x]
	Combined				.10	−.07[a]	.09	.11	−.06	−.02[x]

Table 8

Relationships Between Daily Affect and Daily Events With and
Without Controlling for Control over Events

Affect	Analysis	Inter-cept	Social Events		Achievement Events		Control	
			Posi-tive	Nega-tive	Posi-tive	Nega-tive	Social	Achieve-ment
PA	Separate	4.10	.48	− .23	.28	− .27	.11	.15
	Combined		.45	− .21	.27	− .25	.07	.06
PD	Separate	4.25	.36	− .32	.15	− .38	.13	.17
	Combined		.31	− .28	.14	− .34	.08	.10
NA	Separate	2.76	− .17	.55	.00[x]	.44	− .07	− .12
	Combined		− .14	.53	.01[x]	.41	− .05	− .06
ND	Separate	2.84	− .20	.46	− .15	.36	− .08	− .09
	Combined		− .19	.45	− .14	.33	− .05	− .03

affect found that negative deactive moods (e.g., sadness) were not
related to perceived control over either social or achievement events,
either in isolation or in combination with daily events. Analyses of
affect as dependent measures did not suggest that perceived control
mediated within-person relationships between events and affect.

DISCUSSION

As expected, the results suggest that daily affective and non-affective
states covary with each other and that they covary jointly and in-
dependently with daily events. With only a few exceptions, daily af-
fective and non-affective measures covaried. Nevertheless, with only
a few exceptions, the covariation between daily events and non-
affective measures remained significant after controlling for daily
variations in affect, and the covariation between daily events and
affective measures remained significant after controlling for daily
variations in non-affective measures. Although there was consider-
able partial mediation (of affective and non-affective measures and
the reverse), taken together, these results suggest that the affective
and non-affective domains of daily experience constitute related, but
separable, domains.

Turning first to the two self-evaluative states (self-esteem and depressogenic adjustment), at the zero order, both measures were related to all four affective measures, positively to PA and PD and negatively to NA and ND. Such relationships are sensible and consistent with trait level research. When both sets of measures were analyzed jointly with daily events, all the coefficients between events and the self-evaluation measures remained significant after controlling for affect, and most of the coefficients between events and affective measures remained significant after controlling for self-evaluation. These results suggest that daily affect and daily self-evaluation covaried jointly and independently with daily events.

The two important exceptions to this were the mediation of the negative relationship between PA and negative social events and the positive relationship between PD and positive achievement events. When self-evaluation was controlled, relationships between PA and positive social events and between PD and positive achievement events became nonsignificant. To the extent such results can be used as a basis for making inferences about causal precedence, it would appear that changes in some affective states are due to changes in self-evaluation. More specifically, decreases in PA (e.g., happiness) that might result from unpleasant social contacts seem to be due to changes in self-evaluation. For example, if someone is rejected, this leads to a decrease in self-evaluation, which leads to a decrease in happiness. Similarly, whatever sense of calmness or satisfaction achievement might engender seems to be the result of changes in self-evaluation created by achievement.

Similar patterns were found for relationships between PD and negative social events, between positive social events and NA and ND and for relationships between positive achievement events and ND. It should be noted that in all these cases, although coefficients between events and affective measures decreased meaningfully (suggesting partial mediation), they remained significant, so these cases do not meet the formal criteria for full mediation. The issue of partial versus full mediation is discussed below.

When relationships between self-evaluation and events were controlled for daily affect, none of the coefficients between self-evaluation and events became nonsignificant, although some did decrease meaningfully. For example, the coefficient between daily self-esteem and positive social events fell from .26 to .04 after controlling for daily affect, but it remained significant. If one *needed* to decide which

of the two constructs, self-evaluation or affect, possessed causal precedence, these results suggest that self-evaluation does. Such distinctions are unnecessary however, and the present results should be interpreted to suggest that self-evaluation and affect are complementary ways of examining how people react to daily events.

The pattern of results was somewhat different for the three measures of self-focused thinking: reflection, rumination, and public self-consciousness. First, with the exception of a positive relationship between public self-consciousness and PA, self-focused thinking covaried more strongly (and positively) with both daily NA and ND than with PA or PD. Despite the strength of the relationships between daily self-focused thinking and daily negative affect, however, daily affect did not mediate any relationships between social events (positive or negative) and daily self-focused thinking. All three measures of self-focused thinking covaried positively with both positive and negative social events after measures of affect were included in the model.

Results for achievement events were quite different from these. First, zero-order relationships between self-focused thinking and achievement events (particularly positive achievement events) were much weaker than they were between self-focused thinking and social events. Perhaps more important for present purposes, it appears that affect (primarily negative affect) mediated whatever relationships existed between self-focused thinking and achievement events. After affect was entered in the models predicting self-focused thinking, all but one of the coefficients between events and measures of self-focused thinking became nonsignificant, and the one coefficient that remained significant (between public self-consciousness and negative achievement events) was reduced to near 0.

Taken together, these results suggest that within-person relationships between affect and self-focused thinking tend to be dominated by negative affect, although this relationship does not subsume the positive relationships between self-focused thinking and social concerns. It appears that social activity per se is associated with increased thinking about the self, over and above relationships between social activity and affect. In contrast, the relatively weaker relationships between self-focused thinking and achievement events seem to be mediated by negative affect.

Relationships among event, affect, and cognitive demand differed from those involving self-focused thinking despite the fact that both

measures concerned how much people were thinking about their lives. At the zero order, cognitive demand was positively associated with achievement events, both positive and negative, and was negatively associated with PD and positively associated with NA. Nevertheless, in contrast to relationships among self-focused thinking, affect, and achievement events, affect did not mediate relationships between affect and achievement events.

Affect played a much different role in terms of relationships between cognitive demand and social events. For social events, affect reduced the covariation between positive events and demand from − .21 to − .06. This was a meaningful decline, although the reduced coefficient was still significant. The role of affect was more complex for negative social events. After controlling for affect, the relationship between cognitive demand and negative social events switched from positive (.13) to negative (− .06). Apparently, once the emotional costs of negative social encounters are taken into account, the social contact itself reduces the type of stress measured by the cognitive demand construct.

Perceived control was the last non-affective construct that was examined, and perhaps one of the more interesting findings was the lack of a zero-order relationship between depressed mood (ND) and perceived control over social or achievement events. Part of what makes this finding interesting is that at the trait level, perceived control and depression have been found to be negatively related (e.g., Deci & Ryan, 1985). Moreover, additional analyses of the present data found that perceived control over both social and achievement events were positively related to the daily triad measure. Taken together, these findings suggest that even for a construct that is typically thought of in affective terms (depression), it may be useful to consider its non-affective components, components that seem to be more closely related to more cognitively focused constructs such as perceived control.

Collectively, the present results suggest that understanding reactions to daily events should include non-affective reactions. Although there was some mediation of relationships between daily non-affective measures by affective measures, and vice versa, and some shared variance between the two types of constructs, there was ample independent covariation to justify the inclusion of both types of measures. Moreover, most of the daily non-affective measures included in this study were state analogs of constructs that were

known to be indicators of psychological well-being. Although one cannot automatically assume that state and trait level measures reflect the same processes (Tennen, Affleck, & Armeli, this issue), it seems unreasonable to assume that state measures of constructs that are known to be valid measures of psychological functioning at the trait level are not themselves valid measures of psychological functioning, albeit of a different kind.

Assuming it is worth distinguishing affective and non-affective reactions to daily events, what value might such distinctions have? In terms of self-evaluation, Nezlek (2004) found such a distinction to be useful in understanding cross-cultural differences in the construction of the self. In this study, the daily self-esteem of Japanese participants covaried more strongly with daily social events (both positive and negative) than the self-esteem of North Americans. In contrast, with the exception of depressed mood and negative social events, the daily affect of the Japanese covaried either equally or less strongly than affect of North Americans with social and achievement events. These results are consistent with other research suggesting that the Japanese sense of self is more socially based than it is for North Americans and that the Japanese are less emotional than North Americans.

In terms of perceived control, there is an established body of research demonstrating that perceived control is positively associated with both physical and mental health. More recently, this work has been extended to demonstrate that greater autonomy among patients (i.e., more control over their lives as defined within the present study) is associated with better compliance with doctors' instructions (e.g., Williams, Deci, & Ryan, 1998). Aside from whatever health consequences negative daily events may have as a result of their impact on daily mood, the present results suggest other possible outcomes resulting from the impacts events may have on feelings of autonomy.

An important impetus for research on daily events was Lazurus's research indicating that it was important to consider daily hassles and uplifts because of the possible cumulative nature of stress. That is, the regular, continuous, or continual presence of even relatively low levels of stress might affect well-being. Such a model may also be applicable to non-affective reactions to daily hassles and uplifts. For example, individuals whose self-esteem decreases more day to day as a result of negative social activities may find themselves thinking less of themselves in general, the core of Leary's sociometer model

(Leary, Tambor, Terdal, & Downs, 1995). Similar cumulative effects may also occur for the other states described in this article.

Despite their strengths, the present results need to be viewed with some caution. All the participants in the studies described in this paper were students at a selective, small university. Although it is not exactly clear why this segment of the population should react to events differently than other segments, the possibility exists. For example, the distinction between the social and achievement domains might not be the same for more mature adults who have been in careers or jobs for 10 to 20 years. Or, the distinction between affective and non-affective reactions might be different for people who are not members of an academic community. Clearly, determining the generalizability of the present results requires study of different populations.

Another possible limitation of the present study is the way in which mediation was evaluated. Although desirable in some respects, formal tests of partial mediation (see Kenny, Korchmaros, & Bolger, 2003) were not conducted because there were so many possible tests that the accuracy of any particular test could be called into question. Moreover, the type of summary statement made in this article does not hinge on the results of any specific test. Even if the decreases in many of the coefficients were statistically significant, such a possibility does not undermine the general conclusion of this study that it is worthwhile to distinguish affective and non-affective reactions to daily events. Whether mediation was partial or not, some coefficients remained significant after controlling for other measures, whereas others were not.

Along the same lines, it is important to note that some coefficients for some variables, although significant, were small after controlling for other measures. Although from a purely theoretical or hypothetical testing perspective, statistical significance may be the gold standard, the absolute size of coefficients cannot be ignored. Again, however, assuming that small but statistically significant coefficients are not meaningful does not change the basic conclusion of the study. Overall, affective responses did not mediate relationships between events and non-affective responses any more powerfully than the reverse.

Due to space limitations, this article has concerned only one aspect of reactivity—how to conceptualize reactions to daily events. Just as important, however, are questions concerning individual differences in reactivity. Just as daily event studies have focused on

affective reactions, they have also focused on Neuroticism and Extraversion and moderators of affective reactivity. Such an emphasis is in keeping with the Eysenck model and with recent suggestions that personality can be understood in terms of temperament, with Neuroticism as a reflection of NA and Extraversion as a reflection of PA.

Despite some claims to the contrary, research has not consistently found relationships between reactivity to events and Neuroticism or Extraversion. In contrast to these mixed results, a series of studies has consistently found that depression moderates reactions to positive events (e.g., Butler et al., 1994; Nezlek & Allen, 2004; Nezlek & Gable, 2001; Nezlek & Plesko, 2003), with more depressed people being more reactive across various measures of reactions to daily events. It is important to note that this relationship occurred controlling for individual differences in PA and NA (Nezlek & Plesko, 2003) and Neuroticism and Extraversion (Nezlek & Allen, in press). Nezlek and Plesko (2003) labeled this approach the ''self model'' because of its emphasis on self-evaluation at both the daily (e.g., self-esteem) and trait levels (e.g., depression).

The point here is not to claim, for example, that depression is the single most important individual difference to consider when evaluating reactivity to positive events (although it may be) or that reactivity needs to be conceptualized solely in non-affective terms. Other factors such as Gray's (1987) BIS-BAS distinction have also been found to moderate reactivity (Gable, Reis, & Elliot, 2000). Rather, the point is that researchers need to be open to the possibility that the standard model that has guided research in this area needs to be changed. We need to conceptualize daily variability in terms in addition to affect, and we need to conceptualize individual differences in reactivity to events in terms in addition to Extraversion and Neuroticism and their presumed stand-ins, PA and NA. Unfortunately, there is presently no comprehensive theory to guide such an expansion. The popularity of the negative affect and Neuroticism-Extraversion model probably reflects the availability of the Eysenck model and the popularity of the temperament model of personality, and although these models are informative, it seems that different models with somewhat different bases may also be useful.

When examining fluctuations in daily psychological states, researchers need to be more precise, theoretically and empirically. Among some researchers, there is a tendency to assume that because

measures are correlated strongly, they measure interchangeable constructs. It can be difficult to keep in mind that a correlation of .7 (which would be deemed strong by many) represents only 50% shared variance. The present results suggest that although daily affective and non-affective states sometimes covary strongly, it is probably unwise to assume that daily experience is best conceptualized solely in affective terms. Broadly speaking, neither searching for higher-order broad factors nor determining when it is worthwhile to make distinctions among related constructs is misguided. To blend Cronbach and Kenny Rogers, ''You've got to know when to clump 'em and when to split 'em,'' and such knowledge requires careful theorizing and empirical work that is sensitive to either possibility.

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