

What Makes Experiences Satisfying? The Interaction of Approach–Avoidance Motivations and Emotions in Well-Being

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Two studies examined how dispositional approach-related and avoidance-related motivations moderate the degree to which people base satisfaction judgments on past experiences of positive affect (PA) and negative affect (NA). Using both laboratory-based (Study 1) and experience sampling (Study 2) methodologies, the authors found that high approach participants, as compared with low approach participants, made satisfaction ratings that were more strongly tied to PA. In contrast, avoidance-related motivations did not moderate the degree to which satisfaction ratings were based on either PA or NA. Results indicate that approach motivations may influence well-being not only through emotion over time but also through the degree to which people weight particular emotional experiences in broader judgments of satisfaction.

The power of person and situational influences on psychological life is perhaps no more apparent than it is in the study of subjective well-being (SWB; for a review, see Diener, Suh, Lucas, & Smith, 1999). On the one hand, a large body of research shows that people's overall sense of happiness and life satisfaction appears to be strongly influenced by their personality, particularly the traits of extraversion and neuroticism (for a review, see DeNeve & Cooper, 1998). In this regard, the relationship is clear: As extraversion increases, so do reports of well-being; however, as neuroticism increases, reports of well-being tend to decline. This consistent influence of dispositional factors on well-being is often referred to as a "top-down" influence (Diener, 1984), in the sense that its root is relatively stable and its effect on well-being can be quite varied and pervasive, often influencing the interpretation of everyday experiences and events.

However, as other studies show, SWB is much more than simply a personality phenomenon. Transient and situational factors such as recent positive and negative events (Suh, Diener, & Fujita, 1996), social comparisons (Lyubomirsky & Ross, 1997), and both recent and momentary emotions (Schwarz & Clore, 1983; Suh, Diener, Oishi, & Triandis, 1998) also have been shown to influ-

ence people's judgments of well-being. When judgments of well-being are influenced by these more situationally based, experiential sources, the influence reflects more of a "bottom-up" influence. That is, the judgment is made in a more data-driven manner, reflecting people's actual circumstances and experiences rather than their more stable dispositions.

Although there is clear evidence that well-being is affected by both top-down and bottom-up factors, the interplay between the two has received relatively little attention and is an important interaction to consider in terms of how personality affects well-being. The present studies attempted to bridge these two lines of research by examining the degree to which personality factors related to extraversion and neuroticism—namely, dispositional approach and avoidance motivations (cf. Carver & White, 1994; Gable, Reis, & Elliot, *in press*)—influence the way that people integrate emotional experiences when they make broader cognitive judgments of well-being. That is, when people are asked to rate their well-being, for example, in terms of how satisfied they are with their life over the past day, week, or month, how do their chronic motivations influence the way they give weight to the many and varied emotional experiences they had over the given duration?

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Personality, Emotions, and Life Satisfaction

SWB has historically been assessed in terms of both its hedonic and cognitive components. The hedonic component of well-being commonly refers to the balance of positive over negative emotional experiences in everyday life. In contrast, the cognitive component is often conceived in terms of broader evaluations such as life satisfaction (Diener, Emmons, Larsen, & Griffin, 1985) or meaning and self-realization (Ryan & Deci, 2001). Each of these conceptualizations captures distinct aspects of well-being that are important in their own right, but they are not completely independent. In fact, emotional experiences, particularly those that have occurred within the preceding few months, are perhaps the most common sources from which people form judgments of life satisfaction (Suh et al., 1996, 1998). Thus, when people make such

broad evaluations, there is ample evidence that the judgments are based, at least in part, on an integration of their recent emotional experiences.

This distinction between the affective and cognitive aspects of well-being is important for understanding how personality traits, particularly those related to extraversion and neuroticism, may affect cognitive well-being. To date, the most prevalent explanation for the influence of personality on life satisfaction is that it is mediated by hedonic experience (cf. Schimmack, Radhakrishnan, Oishi, Dzokoto, & Ahadi, 2002). This explanation is compelling, given the fact that extraversion and neuroticism are often conceived as individual differences in the tendency to experience positive and negative emotions, respectively (Watson & Tellegen, 1985). Indeed, studies do show that people high in traits related to extraversion tend to experience greater positive affect (PA) over time, which in turn contributes to elevated ratings of life satisfaction. In contrast, people high in traits related to neuroticism tend to experience greater negative affect (NA) over time, which tends to contribute to lower levels of life satisfaction (Schimmack et al., 2002).

Although this emotion mediation model is well supported, the influence of personality on cognitive evaluations of well-being is likely to be more rich and varied. For one, theorists have argued that personality may also shape more “qualitative aspects of SWB” (Oishi, Diener, Suh, & Lucas, 1999, p. 158). For example, traits and chronic motivations may shape the way in which meaning is given to particular events and emotional experiences (Emmons, 1986; Mischel & Shoda, 1995). This type of influence was shown by Oishi and colleagues when they found that people high in the trait of sensation seeking are more likely than low sensation seekers to base satisfaction judgments on events involving physical pleasure (Oishi, Schimmack, & Diener, 2001). These researchers argued that, to the degree that aspects of personality influence how particular experiences are valued, they are likely to influence the degree to which those experiences are tied to one’s broader sense of well-being. Sheldon and Elliot (1999) and Emmons (1986) made a similar point when they argued that well-being is enhanced most when one’s experiences and achievements are concordant with valued goals and strivings. Although these studies did not specifically focus on approach and avoidance motivations and their influence on the weighting of positive and negative emotions in cognitive well-being, they do highlight the importance of examining individual differences in how people construct judgments of satisfaction, particularly as a way of understanding the processes that underlie SWB.

Dispositional Approach and Avoidance Motivations

Recently, a number of lines of research in social and personality psychology have converged in suggesting that the traits of extraversion and neuroticism may be reflections of individual differences in the strength of approach-related and avoidance-related motivations (for a review, see Carver, Sutton, & Scheier, 2000). Despite the fact that extraversion and neuroticism have long been conceived as the two broadest personality traits (Eysenck & Eysenck, 1985), the research supporting these traits has historically been based on factor analyses of adjective checklists, a methodology that has led to some degree of uncertainty regarding what the traits fundamentally represent. For example, measures of extraversion

often include facets such as sociability, reward sensitivity, positive affectivity, and optimism, whereas measures of neuroticism may refer to facets such as emotional instability, negative affectivity, or pessimism (Eysenck & Eysenck, 1985). Thus, it is often difficult to identify whether it is the broader traits or particular subfacets that drive a phenomenon of interest.

In an attempt to build a framework for understanding extraversion and neuroticism in terms of their function and underlying neural basis, Gray (1990) has argued that they reflect individual differences in the sensitivities of two neurobiological systems that guide emotions and behavior in response to signals of reward and threat: the behavioral activation system (BAS) and the behavioral inhibition system (BIS). According to Gray’s theory, BAS activates appetitive behavior in response to cues of reward, nonpunishment, and escape (i.e., approach-related behavior), whereas BIS inhibits behavior in response to cues of punishment and nonreward (i.e., avoidance-related behavior). Further, these two motivational systems are conceived as being generally orthogonal and each related to one broad affective quality: BAS is thought to be related to the experience of PA, and BIS is thought to be related to the experience of NA (Gray, 1990). Thus, according to Gray’s model, the traits of extraversion and neuroticism may be thought of, more fundamentally, as individual differences in the sensitivities of approach-related and avoidance-related motivational systems, a conceptualization that recent empirical work supports (Elliot & Thrash, 2002; Gable et al., in press).

Approach and avoidance motivations also appear to influence the processes of seeking, attending to, and responding to situations involving positive and negative emotion, which offers insight into how people may interpret and value their emotional experiences. Gable, Reis, and Elliot (2000) showed that whereas people with stronger avoidance motivations are more reactive to negative life events than people with weaker avoidance motivations, people with stronger approach motivations tend to experience more positive events than people with weaker approach motivations. Further, work by Derryberry and Reed (1994) shows that people with stronger approach motivations are slower to shift attention away from positive stimuli, whereas people with stronger avoidance motivations are slower to shift attention away from negative stimuli. In addition, extraverts are particularly likely to share positive experiences with others, whereas neurotics are likely to ruminate on negative experiences (Luminet, Zech, Rime, & Wagner, 2000; Roberts, Gilboa, & Gotlib, 1998).

In summary, the pattern of findings suggests that highly approach-motivated individuals are likely to place a greater value on the pursuit, attainment, and subsequent valuation of positive emotional experiences than less approach-motivated individuals. In contrast, although highly avoidance-motivated individuals are probably not likely to seek out negative experiences any more than less avoidance-motivated individuals (Gable et al., 2000), their attention may nevertheless be focused to a greater degree on potential and past negative emotional experiences, making such experiences more chronically salient sources for subsequent satisfaction judgments. Thus, the present studies sought to examine the potential role of approach and avoidance motivations in moderating the degree to which experiences of past positive and negative emotion form a basis for judgments of life satisfaction.

Overview of the Present Studies

The present research examined the relationships among dispositional motivations, emotional experiences, and judgments of satisfaction in two studies with complementary methodologies. Study 1 was conducted in a controlled laboratory setting, whereas Study 2 involved a more naturalistic, experience sampling approach. Across both studies, we hypothesized that the satisfaction judgments of high approach individuals, as compared with low approach individuals, would be more strongly predicted by recent experiences of PA, reflecting a greater value placed on the attainment of such experiences. In contrast, we hypothesized that satisfaction judgments of high avoidance individuals, as compared with low avoidance individuals, would be more strongly predicted by recent experiences of NA, reflecting the greater potential impact such events would have on broader measures of well-being.

Study 1

Study 1 sought to test the hypotheses in a controlled setting so that the potential influence of self-selection of experiences could be eliminated. Participants first completed measures of dispositional approach and avoidance motivations and then provided repeated measures of positive and negative emotions throughout a series of laboratory-based mood induction tasks. At the end of the study, participants reported their satisfaction with taking part in the study. By keeping all participants' objective experiences constant, Study 1 ensured that any observed differences in the degree to which satisfaction ratings were based on positive or negative emotion would not be attributable to qualitative differences in the events to which participants responded.

Method

Participants. Seventy-seven undergraduate students (44 women and 33 men) participated in Study 1 in exchange for credit in a psychology course.

Procedure. The study was described to participants as two unrelated studies, one focusing on the effects of rewards and punishments on pattern recognition ability and the other, a pilot study, examining the effectiveness of film clips as mood inducers. In actuality, the study was designed so that each participant would engage in a total of four tasks—two pattern recognition tasks (PR tasks) and two film-rating tasks (FR tasks)—of which two were designed to elicit PA and two were designed to elicit NA. After completing a short questionnaire packet that contained the motivation measures, participants were randomly assigned to one of four task sequences. Half of the participants started with the PR tasks, and half started with the FR tasks. Further, within each of these two sequences, half started with the positive version and half started with the negative version, with all subsequent tasks alternating in valence.

The PR tasks were based on Carver and White's (1994) "cues of impending reward" and "cues of impending punishment" tasks. During each task, a computer presented participants with 10 blocks of trials. Each trial contained a series of characters on which participants responded, using keystrokes, as to whether the final character conformed to the pattern depicted by the preceding characters. At the end of each block, the computer informed participants how many of the preceding trials they had completed correctly. Each version of the pattern recognition task took between 10 and 20 min to complete, depending on the speed at which participants responded to trials.

Unbeknownst to the participants, there were no correct or incorrect answers, because nearly all of the trials contained random sequences of

characters. This deception was used so that identical feedback could be given to each participant regardless of response. In the positive condition, participants earned a small cash reward for ostensibly good performance on particular blocks. In reality, the feedback was rigged so that each participant earned \$3 on completion of the task. In the negative condition, participants placed one hand in a container of cold water for 15 s immediately after blocks of ostensibly poor performance. Again, the performance feedback was rigged so that all participants underwent a total of five 15-s immersions.

Participants were also asked to watch two film clips and to answer a short questionnaire after each clip. The positive film clip was a 4.5-min stand-up comedy routine from *Robin Williams Live* (Miller & Gowers, 1986). The negative film clip was an excerpt (4 min, 40 s in duration) from the motion picture *Misery* (Reiner & Scheinman, 1990) that included a scene in which a woman breaks the ankles of a man imprisoned in her home. Both clips were effective in eliciting PA and NA, respectively, in pilot tests involving a sample of undergraduate students.

Measures. The 20-item BIS/BAS Scale (Carver & White, 1994) was used to assess dispositional approach and avoidance motivations. Seven of the items measured avoidance (BIS) motivation, for example, "I worry about making mistakes" and "Even if something bad is about to happen to me, I rarely experience fear or nervousness" (reverse scored). The remaining 13 items measured approach (BAS) motivation, for example, "If I see a chance to get something I want, I move on it right away" and "When I see an opportunity for something I like, I get excited right away." The alpha reliabilities of the BIS and BAS subscales were .82 and .72, respectively. The scales were not significantly correlated with one another ($r = .07$).

Momentary PA and NA were measured with a short questionnaire after each task. The items asked about the greatest amount of five positive emotions (pleased, delighted, enthusiastic, friendly, and amused) and five negative emotions (upset, irritable, nervous, pained, and scared) that participants had experienced at any time over the course of the task. In the PR tasks, participants were instructed to answer the questions so that any mood effects could be controlled. In the FR tasks, participants were asked to simply answer the questions according to their reactions to the films. Participants made their ratings for each of the affect items on a 9-point scale ranging from *did not feel at all, even the slightest bit* (0) to *most I have felt in my life* (8). The average alpha reliabilities of the momentary PA and NA scales were .83 and .79, respectively.

End-of-study satisfaction was measured with four items that assessed the participant's overall satisfaction with the experience of taking part in the study, such as "How good or bad was participating in this experiment?" and "Would you choose to do this study again if you still needed to participate in an experiment?" Responses to each item were made on a 7-point scale, with higher numbers reflecting greater satisfaction. Reliability of this four-item scale was strong ($\alpha = .88$).

Results

Effectiveness of tasks in inducing emotions. Across the four tasks, participants reported mild levels of both PA ($M = 2.55$, $SD = 1.00$) and NA ($M = 2.05$, $SD = 0.79$). Across positive tasks, participants reported greater levels of PA ($M = 3.55$, $SD = 1.27$) than NA ($M = .85$, $SD = 0.72$; $p < .01$). Across negative tasks, participants reported greater levels of NA ($M = 3.25$, $SD = 1.18$) than PA ($M = 1.56$, $SD = 0.95$; $p < .01$).

Influence of BAS and BIS on emotions. As expected, BAS was positively related to mean PA across tasks ($r = .31$, $p < .01$) but was not related to mean NA ($r = -.10$). Interestingly, BIS was not associated with mean NA ($r = .03$) but was somewhat negatively correlated with mean PA ($r = -.15$, $p < .20$). Thus, high approach participants clearly reported more PA than low approach partici-

pants, but avoidance motivations did not have a substantial effect on PA or NA.

Do BAS and BIS moderate the link between emotions and end-of-study satisfaction? To address this question, we conducted a sequential multiple regression analysis in which end-of-study satisfaction was regressed onto BAS, BIS, mean PA, mean NA, and four interaction terms (BAS \times PA, BAS \times NA, BIS \times PA, and BIS \times NA). Because male participants reported significantly greater satisfaction and weaker avoidance motivations than female participants, gender was included as a control (both $ps < .01$).

In the first step, gender ($\beta = .20, p = .08$), BAS ($\beta = .19, p = .11$), and BIS ($\beta = -.22, p = .10$) jointly predicted a significant portion of the variance in satisfaction, $F(3, 73) = 4.57, p = .01$. In the second step, PA ($\beta = .51, p < .01$) and NA ($\beta = -.10, p = .39$) predicted an additional proportion of variance in satisfaction (R^2 change = .20, $p < .01$), whereas the unique relationships with BIS ($\beta = -.12, p = .35$) and BAS ($\beta = .02, p = .90$) were noticeably attenuated. The third step, which added the four interaction terms, also contributed to the prediction of satisfaction (R^2 change = .09, $p < .05$). Thus, as a whole, the interactions between motivations and emotions accounted for a significant proportion of the variance in participants' satisfaction ratings.

Table 1 presents the coefficients and significance tests for the predictors in the regression analysis, $F(9, 67) = 6.10, p < .01$. PA was the strongest predictor of satisfaction, such that participants who reported more PA rated their experience as more favorable. Men were more likely than women to rate their participation as favorable, and participants who reported greater NA reported somewhat but not significantly less satisfaction. However, of the four interaction terms, only the BAS \times PA interaction was significant, and this interaction alone predicted 3.5% of the variance in satisfaction above and beyond the main effects of gender, motivations, and emotions. This coefficient was positive, as hypothesized, indicating that the stronger a person's approach motivation, the more his or her overall satisfaction was influenced by the amount of PA he or she experienced throughout the study.

Table 1
Summary of Regression Analysis Predicting End-of-Study Satisfaction From Gender, BAS, BIS, PA, NA, and Interaction Terms

Predictor	β	SE	$t(67)$	p
Gender ^a	.23	.21	2.13	.04
BAS	.05	.38	0.40	.69
BIS	-.17	.24	-1.24	.22
Mean PA	.60	.12	4.77	<.01
Mean NA	-.19	.18	-1.32	.19
BAS \times mean PA	.20	.34	1.99	.05
BAS \times mean NA	.11	.57	0.83	.41
BIS \times mean PA	.19	.20	1.57	.12
BIS \times mean NA	-.15	.35	-0.91	.37

Note. Standard errors were computed with the heteroscedasticity-corrected robust estimator. BAS = behavioral activation system; BIS = behavioral inhibition system; PA = positive affect; NA = negative affect.
^a Female = 0, male = 1.

Discussion

Study 1 supported the hypothesis that stronger approach motivations would be associated with greater weighting of positive emotional experience in the judgment of satisfaction. Although it was indeed the case that high approach participants also reported their experience to be more pleasurable than did low approach participants, the analyses took into account the main effects of emotions on subsequent satisfaction. Hence, given the objective similarity of the situations that participants encountered, the results provide strong support for our prediction that high approach participants weigh positive emotions more heavily than low approach participants when constructing judgments of satisfaction.

However, Study 1 did not provide evidence that avoidance motivations moderated the degree to which participants based satisfaction judgments on negative emotion. This lack of moderation may have been due, in part, to the relative lack of potency of NA in predicting evaluations. However, also note that although the overall influence of negative emotions was nonsignificant across all participants, this fact alone does not eliminate the potential for motivations to moderate the influence in one direction or another. Thus, the results of Study 1 tentatively suggest that avoidance motivations may not play a substantial role in moderating the degree to which evaluations are based on negative experiences.

Although our explanation for the BAS \times PA interaction is that it represents a differential weighting of positive emotions, note that an alternative explanation could involve motivation-related memory biases in emotion. For example, some research suggests that traits related to extraversion and neuroticism are associated with overestimation of past positive and negative emotional experiences, respectively (e.g., Barrett, 1997). Hence, the pattern of BAS \times PA moderation could conceivably be due to greater overestimation, rather than overvaluation, of past PA at the time of the satisfaction judgment. Although we cannot completely rule out this possibility, we point out that the extremely short duration of the study limited the degree to which memory biases could have accounted for the results. However, because memory biases were not explicitly assessed in Study 1, we addressed this limitation in Study 2.

A second limitation of Study 1 was the artificial nature of the laboratory setting and the satisfaction judgments. Although we believe that participants made their judgments in a manner similar to broader judgments of life satisfaction, the unnatural setting and short time frame obviously limited the generalizability of the findings to the types of life satisfaction judgments typically examined in SWB research.

Finally, Study 1 involved the use of a between-subjects analytic approach that could not fully take into account the phenomenological experience of a situation. That is, although a participant might have rated his or her experience as more pleasant in comparison with the rest of the sample, this does not necessarily mean that it was pleasant in relation to his or her typical daily experiences. Thus, although Study 1 provided valuable data highlighting general tendencies that differ among people, the analyses could not adequately capture the degree to which satisfaction judgments might have been tied to experiences that were positive or negative in the context of participants' everyday experiences.

Study 2

Study 2 was designed to address the limitations of the first study and examine the degree to which dispositional motivations shape the types of satisfaction judgments that are more typical of everyday life. This study involved an experience sampling approach in which participants provided repeated momentary emotion ratings and a single daily satisfaction rating on each of 7 days, as well as a final measure of weekly satisfaction. Thus, this study provided the opportunity to test how approach and avoidance motivations moderated the relationship between emotions and satisfaction at both the daily and weekly levels. Further, because Study 2 involved a longer time frame, we also asked participants to provide retrospective estimates of weekly emotions to allow explicit examination of the influence of memory biases in judgments of weekly satisfaction.

Because participants provided data for up to 7 days, the daily-level analyses involved a within-person analytic approach testing the hypotheses that between-persons differences in approach and avoidance motivations moderate the degree to which within-person fluctuations in mean daily PA and NA are tied to fluctuations in judgments of daily well-being. This approach addressed the fact that evaluations of experiences and well-being are often made temporally; that is, participants are likely to rate their satisfaction in terms of how their present emotions and experiences differ from their typical experiences.

Method

Participants. One hundred eleven undergraduates (75 women and 36 men) participated in Study 2 in exchange for credit in a psychology course. Because the daily-level analyses focused on within-person variability in daily affect and daily satisfaction, 6 participants who had little or no variation (within-person *SDs* < 0.50) in their daily satisfaction ratings were not included in these analyses.

Procedure. The study was described as a weeklong study on the everyday experiences of college students. After completing a short questionnaire packet, participants were loaned a PalmPilot device running the Experience Sampling Program (ESP; Barrett & Barrett, 2001), which administered the daily affect questions. Six times a day over the following 7 days, ESP randomly beeped participants to answer a short questionnaire on their momentary emotions. Participants were given a limited amount of time to respond to each signal, and if they did not respond during the window, ESP prevented them from providing retrospective responses at a later time. At the end of each evening, participants were asked to call a voice mailbox to respond to the daily satisfaction question. As a means of maximizing compliance with both the momentary and end-of-evening assessments, participants received tickets toward a cash prize raffle for each timely response. On the 8th day, participants returned the PalmPilot device and completed a final questionnaire packet about their experiences over the preceding week.

Measures. The BIS/BAS Scale was administered during the initial experiment session. The alpha reliabilities of the BIS and BAS scales were .71 and .83, respectively, and the scales were not significantly correlated ($r = .05$).

The ESP-administered emotions questionnaire asked about the extent to which participants currently experienced each of six positive emotions (excited, proud, interested, pleased, enthusiastic, and affectionate) and six negative emotions (upset, guilty/ashamed, irritable, nervous, lonely, and depressed). Participants made their ratings on a 5-point scale ranging from *not at all* (1) to *extremely* (5). The cross-assessment mean alpha reliabilities of the momentary PA and NA scales were .89 and .82, respectively.

Daily satisfaction was assessed with the question "How good or bad has today been?" Participants answered using a 1 (*extremely bad*) to 7 (*extremely good*) scale. This single daily satisfaction item was used because it minimized the amount of time participants spent on a daily basis and has, in past studies, been shown to be a reliable indicator of satisfaction (Andrews & Withey, 1976).

During the follow-up session, weekly satisfaction was assessed with a modified version of the Satisfaction with Life Scale (SWLS; Diener et al., 1985). The SWLS asks participants to rate their agreement with five statements such as "In most ways my life is close to my ideal" and "The conditions of my life are excellent" (1 = *strongly disagree*, 7 = *strongly agree*). In the current study, the questions were modified so that the time frame referred to the preceding week. The reliability of the weekly satisfaction scale was strong ($\alpha = .86$).

After completing the SWLS, participants provided retrospective estimates of PA frequency and PA and NA intensity over the preceding week. For PA frequency, participants estimated the percentage of time during the week in which PA was more intense than NA. For PA and NA intensity estimates, participants responded to the question "When you felt more positive [negative] affect than negative [positive] affect, how intensely did you experience the following emotions, on average?" Participants responded using the same items and rating scales as the momentary affect ratings. Estimated PA and NA intensities were then calculated by averaging the estimates for all PA items and all NA items, respectively. We used these definitions of retrospective emotions because they were the same definitions we used to calculate their actual frequency and intensities from the momentary assessments, and they have been previously shown to provide relatively accurate retrospective estimates (Thomas & Diener, 1990). Similarly, the correlations between participants' estimates and actual emotions in our study were all significant ($r = .56$, $r = .69$, and $r = .27$ for PA frequency, PA intensity, and NA intensity, respectively, all $ps < .01$), indicating that the estimates reflected meaningful between-persons variation.

Results

Compliance. Participants responded to an average of 3.36 ($SD = 0.84$) momentary emotion assessments each day. Compliance was not significantly associated with demographics or any other measure used in the analyses, with the exception of age. On average, older participants were more compliant than younger participants ($p = .05$).

Timely compliance with the daily satisfaction question was determined through voicemail time stamps. To ensure that the daily satisfaction ratings were not contaminated by memory biases that may have become more pronounced overnight, we used only responses provided before 4 a.m. in analyses. Participants made an average of 5.27 ($SD = 1.54$) timely ratings of daily satisfaction. Again, only older age was associated with greater compliance ($p < .05$).

Influence of BAS and BIS on daily emotions. As expected, BAS was positively associated with mean daily PA ($r = .19$, $p < .05$) but was not associated with mean daily NA ($r = .03$). In contrast, BIS was positively associated with mean daily NA ($r = .22$, $p < .05$) but was not significantly associated with mean daily PA ($r = -.08$).

Do BAS and BIS moderate the link between daily emotions and daily satisfaction? To address this question, we analyzed a multilevel random coefficient model in which daily satisfaction was predicted by mean daily PA and mean daily NA. Thus, the daily-level equation predicting daily satisfaction (DS) was as follows: $DS = \beta_0 + \beta_1(\text{Mean PA}) + \beta_2(\text{Mean NA}) + r$. As a means of

examining the degree to which BIS and BAS predicted daily satisfaction and moderated the relationships among mean PA, mean NA, and daily satisfaction, each beta (β_k) coefficient in the daily-level equation was predicted by an intercept (γ_{k0}), a person's BIS score multiplied by a coefficient γ_{k1} , a person's BAS score multiplied by a coefficient γ_{k2} , and a random variance component (U_k), yielding the following person-level equations: $\beta_0 = \gamma_{00} + \gamma_{01}(\text{BIS}) + \gamma_{02}(\text{BAS}) + U_0$, $\beta_1 = \gamma_{10} + \gamma_{11}(\text{BIS}) + \gamma_{12}(\text{BAS}) + U_1$, and $\beta_2 = \gamma_{20} + \gamma_{21}(\text{BIS}) + \gamma_{22}(\text{BAS}) + U_2$.

Because the coefficients γ_{11} , γ_{12} , γ_{21} , and γ_{22} represent the degree to which the slopes of mean PA and mean NA may be functions of BIS and BAS, the significance of these coefficients provides evidence for the moderation hypotheses. On the other hand, the significance of the γ_{01} and γ_{02} coefficients provides evidence of any general effects of BIS and BAS on daily satisfaction ratings. The daily-level affect measures were group-mean centered so that the β_1 and β_2 coefficients reflected the degree to which within-person variations from a person's mean daily PA/NA predicted within-person variations in daily satisfaction. The person-level BIS and BAS measures were grand-mean centered so that the γ_{k1} and γ_{k2} coefficients reflected the degree to which variations from the sample's mean BIS and BAS scores were predictive of daily satisfaction. To take compliance into account, we weighted each daily-level case by the participant's rate of response to that day's momentary emotion assessments.

Before estimating the fixed effects γ_k , we tested the significance of each of the random components U_k using restricted maximum likelihood (ML) estimation (Raudenbush & Bryk, 2002). Although U_1 had significant variance in an unrestricted model, the U_1 variance was nonsignificant when BIS and BAS were included in the model, so it was removed and the remaining parameters were estimated through the use of full ML estimation.

Table 2 presents the final parameter estimates and significance tests. As expected, participants reported greater daily satisfaction on days in which they reported more daily PA and less daily NA relative to their own mean. However, the general relationship between daily PA and daily satisfaction was moderated by an interaction with BAS motivation. The γ_{12} coefficient was signif-

icant and positive, indicating that participants with stronger BAS motivation had, on average, a stronger positive relationship between daily PA and daily satisfaction than participants with weaker BAS motivation. Further, the γ_{22} coefficient was significant and positive, indicating that participants with stronger BAS motivation made daily satisfaction ratings that were also less influenced by daily NA than those of participants with weaker BAS motivation. Thus, as participants' approach motivations increased, their daily satisfaction ratings became more strongly tied to daily PA and less strongly tied to daily NA. However, as the nonsignificant γ_{11} and γ_{21} coefficients indicate, BIS did not appear to moderate the relationship between daily emotions and daily satisfaction.

Do BAS and BIS moderate the link between weekly emotions and weekly satisfaction? To examine whether BAS and BIS moderated the relationship between weekly emotions and weekly satisfaction, we conducted a sequential regression analysis in which weekly satisfaction was predicted by BAS and BIS (first step), weekly PA and weekly NA (second step), and the four motivation-emotion interaction terms (third step). To account for varying compliance in responding to the momentary affective measures, we weighted the analyses by each participant's response rate across the week.

The first step of the regression was not significant, $F(2, 108) = 0.56$, indicating that BAS and BIS were not significant joint predictors of weekly satisfaction. However, the second step was significant, $F(4, 106) = 17.36$, $p < .01$; both weekly PA ($\beta = .49$, $p < .01$) and weekly NA ($\beta = -.46$, $p < .01$) predicted weekly satisfaction. However, addition of the interaction terms in the third step did not contribute significantly to the prediction of weekly satisfaction, R^2 change = .01, change in $F(4, 102) = 0.30$, *ns*, indicating that neither BAS nor BIS moderated the relationship between emotions and satisfaction at the weekly level.

Can motivation-related memory biases account for the moderation effects? To examine whether approach or avoidance motivation was related to biases in emotional memory that could account for the observed pattern of moderation, we examined (a) whether weekly satisfaction judgments were influenced by inaccuracies in participants' memory of their past emotional experiences and (b) whether any such memory biases were related to approach or avoidance motivation. To examine the first issue, we conducted a sequential regression in which weekly satisfaction was predicted first by participants' actual frequency and intensity of weekly emotion, followed by their retrospective estimates of weekly emotion. The first step of the regression was significant, as expected ($R^2 = .32$, $p < .01$), showing that weekly satisfaction ratings were related to actual weekly emotions. The second step was significant as well (R^2 change = .18, $p < .01$), indicating that weekly satisfaction was also influenced by how much emotion participants thought they had experienced.

However, of the various affect measures, only the measures of actual PA frequency ($\beta = .29$, $p < .01$) and estimated PA frequency ($\beta = .52$, $p < .01$) were significant predictors of satisfaction. To examine whether this overestimation of PA frequency was also associated with approach or avoidance motivations, we conducted another regression in which estimated PA frequency was predicted by actual PA frequency as well as BAS and BIS. Neither BAS ($\beta = .09$, *ns*) nor BIS ($\beta = -.09$, *ns*) predicted estimated PA frequency after control for actual PA frequency ($\beta = .55$, $p < .01$).

Table 2
Summary of Multilevel Regression Analysis Predicting Daily Satisfaction From BIS, BAS, Daily PA, Daily NA, and Interaction Terms

Parameter	Coefficient	SE	<i>t</i>	<i>p</i>
Intercept (γ_{00})	4.84	0.08	59.40 ^a	<.01
BIS main effect (γ_{01})	-0.19	0.19	-1.04 ^a	.30
BAS main effect (γ_{02})	-0.23	0.23	-1.01 ^a	.32
Mean PA main effect (γ_{10})	0.92	0.10	9.60 ^b	<.01
BIS moderation (γ_{11})	0.30	0.23	1.31 ^b	.19
BAS moderation (γ_{12})	0.67	0.27	2.48 ^b	.01
Mean NA main effect (γ_{20})	-0.41	0.14	-2.91 ^a	<.01
BIS moderation (γ_{21})	0.00	0.29	0.02 ^a	.99
BAS moderation (γ_{22})	0.92	0.37	2.51 ^a	.01

Note. Coefficients are unstandardized. BIS = behavioral inhibition system; BAS = behavioral activation system; PA = positive affect; NA = negative affect.

^a Approximate *df* = 99 (due to estimation of random effects). ^b Approximate *df* = 535.

Thus, the results do not suggest that BIS or BAS influenced participants' estimations of how frequently they experienced PA across the week, indicating that memory biases do not provide a plausible explanation for the pattern of observed moderation.

Brief discussion of Study 2. In summary, the daily-level analyses replicated the findings of Study 1, in that approach-related motivations moderated the degree to which satisfaction judgments were based on past positive emotional experiences, but avoidance-related motivations did not moderate the degree to which satisfaction was related to either positive or negative emotional experiences. We also found that high approach individuals placed a lesser weight on negative emotional experiences in their satisfaction judgments. Although this latter finding was not explicitly hypothesized, it is consistent with our hypothesis that approach-motivated participants make satisfaction judgments that are rooted more in positive emotional experiences. However, the analyses also suggest that there may be limits on the degree to which approach motivations moderate emotions in the judgment of satisfaction, in that approach motivations moderated the emotion-satisfaction relationship at the daily level but not at the weekly level, a point to which we return shortly.

General Discussion

Our studies clearly supported our hypothesis that the more a person is oriented toward approaching rewards and positive experiences, the more her or his judgments of daily well-being are based on positive emotional experiences. This moderating role of approach motivations was observed for judgments made in both controlled laboratory settings and over the course of day-to-day evaluations, and it did not appear to be due to retrospective memory biases. Further, this effect was not simply due to the fact that people with stronger approach motivations experienced more PA over time, because the analyses took into account the general effects of emotion in predicting satisfaction ratings. Taken together, our findings suggest that people who are strongly approach motivated reap a double benefit in terms of well-being: Not only do they experience more positive emotions over time, but their overall sense of daily well-being is tied more to positive emotional experiences and less to negative emotional experiences.

Although our studies examined well-being judgments made in relatively mundane contexts by a generally healthy population, our findings may shed some light on processes that contribute to well-being in the context of stressful and traumatic experiences. In particular, numerous studies in the coping literature have focused on the phenomenon of "benefit finding," which refers to the observation that people often report positive psychological consequences as a result of their experiences with negative events. As a coping strategy, benefit finding appears to be particularly effective, in that people who report finding benefits tend to report greater well-being than those who do not (Davis, Nolen-Hoeksema, & Larson, 1998; Updegraff, Taylor, Kemeny, & Wyatt, 2002). Further, benefit finding has been tied to the trait of extraversion (Affleck & Tennen, 1996). Although benefit finding is considered a coping strategy that can conceivably be used by any person to cope with a stressor, our findings suggest that it may also be a manifestation of a more general tendency for approach-motivated individuals to place a particular emphasis on positive emotional experiences when considering more broadly the impact

of an event on their lives. Although the parallels between our results and those in the benefit-finding literature are striking, further research is needed to more firmly establish this link.

In contrast to the influence of approach motivations, avoidance motivations did not appear to moderate the degree to which negative emotions were related to judgments of satisfaction. However, this is not to say that avoidance motivations do not matter in terms of understanding SWB. Rather, our findings mirror those of Carver and White (1994) and Gable et al. (2000) in further highlighting the link between avoidance motivations and the experience of emotions—particularly negative emotions—over time. We found that people with strong avoidance motivations report greater negative emotions over the course of everyday life, which contributes to lower satisfaction ratings. Thus, avoidance motivations appear to shape well-being through direct emotional experience rather than by shaping the way in which emotional experience is integrated into broader evaluations of well-being.

This divergence in findings regarding approach and avoidance motivations further reinforces previous research on the differing nature of approach and avoidance motivations. Approach-related motivation reflects an appetitive process that governs the degree to which potentially rewarding stimuli are actively sought after (Gray, 1990). Consistent with this framework, Gable et al. (2000) have shown that approach-motivated individuals report greater exposure to positive events in the course of everyday life than less approach-motivated individuals. In other words, high approach individuals are likely to experience more positive events because of greater effort exerted in pursuing them. Thus, individual differences in approach motivation are likely to reflect differences in the degree to which potentially positive experiences are valued and, hence, the degree to which such experiences will be related to subsequent and more global construals of well-being.

In contrast, avoidance-related motivation may reflect less of a devaluation or vilification of negative experiences and more of an emotional reactivity to negative events. For example, Gable et al. (2000) found that high avoidance-motivated individuals are not any more successful in avoiding negative events than low avoidance-motivated individuals; rather, they tend to report greater negative emotions in response to such events when they are encountered. Thus, if avoidance motivation is conceived in terms of reactivity rather than valuation, its influence on well-being is probably due to the experience of negative emotion, as our findings suggest. In other words, negative events happen in everyday life regardless of our best efforts to avoid them. However, their ultimate impact on well-being appears to be due to the extent of negative emotions they elicit, and in this regard avoidance motivations appear to play an important role in moderating one's emotional responses to negative events.

In the experience sampling study, we examined the degree to which memory biases might provide a plausible account for the pattern of motivation-related moderation we observed across the two studies. In short, the findings do not suggest that the interaction between approach motivations and emotional experiences could be explained by any motivation-related memory biases at the time of judgment, reinforcing the view that the observed interaction is due to differential valuation. Although we acknowledge that emotional memory was not assessed at the daily level and therefore cannot directly address the daily-level findings, we assessed memory biases across the time frame for which they were most

likely to be pronounced and found that they were not associated with dispositional motivations. Further, the findings of the experience sampling study parallel the findings of the laboratory study, for which memory biases were least likely to have affected participants' evaluations.

Across the time frame of a week, we did not find that motivations moderated the relationship between emotion and satisfaction. Although this lack of motivation-related moderation at the weekly level may suggest that its overall influence on long-term well-being is limited, note that our studies focused on sheer hedonic experience as the sole basis of satisfaction judgments. Hedonic experience may be a particularly salient basis for satisfaction judgments that span short time frames such as hours or days; across longer time frames, however, the influence of hedonic experience may wane in comparison with the impact of one's recalled life events (Seidnitz, Wyer, & Diener, 1997) or one's perceived progress in terms of valued strivings and goals (Emmons, 1986; Sheldon & Elliot, 1999) or important life domains (Diener, Lucas, Oishi, & Suh, 2002). Thus, whereas aspects of motivation may not moderate the influence of hedonic experience on judgments of longer term satisfaction, they may moderate the influence of these other equally important bases. Further, because longer term judgments of well-being are likely to be grounded in the continued experience of daily well-being, the processes we have identified at the daily level are likely to affect long-term well-being as well.

Conclusion

Across two studies, we found evidence that individual differences in approach motivation, but not avoidance motivation, are important moderators of the degree to which discrete, moment-to-moment experiences subsequently shape broader judgments of cognitive well-being. As such, these findings highlight an important and understudied manner by which personality shapes people's evaluations of their lives and well-being. Hence, the findings of the present studies point not only to the rich and pervasive influence of personality on life satisfaction but also to the promise of integrating top-down and bottom-up approaches in future research on SWB.

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