

Belief and Feeling: Evidence for an Accessibility Model of Emotional Self-Report

Michael D. Robinson
North Dakota State University

Gerald L. Clore
University of Virginia

This review organizes a variety of phenomena related to emotional self-report. In doing so, the authors offer an accessibility model that specifies the types of factors that contribute to emotional self-reports under different reporting conditions. One important distinction is between emotion, which is episodic, experiential, and contextual, and beliefs about emotion, which are semantic, conceptual, and decontextualized. This distinction is important in understanding the discrepancies that often occur when people are asked to report on feelings they are currently experiencing versus those that they are not currently experiencing. The accessibility model provides an organizing framework for understanding self-reports of emotion and suggests some new directions for research.

Emotions are momentary experiences that are intimately tied to the ebb and flow of everyday life, but people also possess generalized beliefs about their emotions. Because beliefs are abstract representations, whereas emotions are episodic occurrences, emotional experience and beliefs about emotion often diverge. This less-than-perfect correspondence has important consequences for understanding emotional self-report. In this article, we explore the discrepancies that can arise when people report on their current feelings versus on feelings that they are not currently experiencing. Our goal is to show how a handful of accessibility principles can explain many of the inconsistencies that appear in the self-report literature.

We offer an accessibility model of emotional self-report as an organizational framework. The model is based on standard cognitive principles of accessibility and priming. According to this model, when data from current experience is inaccessible, self-reports of emotion will reflect other sources of nonexperiential information. These other sources of information include memory for the episodic details of an emotional event as well as semantic knowledge about one's emotions. Our review of relevant studies shows that the approach has broad explanatory power and numerous implications for future research. We focus on how this approach can advance the understanding of emotional reports by specifying the factors that contribute to different types of self-report. Relevant issues are raised throughout the article, and new

research designed to test the accessibility assumptions of the model is presented.

Sources of Information in Emotional Self-Report

Self-report is the most common and potentially the best (Clore, 1994; Diener, 2000; Watson, 2000) way to measure a person's emotional experiences. In addition to being convenient, it is also true that, unlike physiological measures of emotion, self-report measures are not limited to current emotions. In this respect, people can answer all kinds of questions about their emotional experiences, including how they felt in the past, how they think they will feel in the future, and how they would feel in a particular situation. Partly because of the ease with which people can make emotion ratings, it is a common practice to take the same emotion terms, the same set of instructions, and simply change the relevant time frame (e.g., past few weeks, right now, in general, if X happened, etc.) when asking people to rate their experiences. Regardless of the time frame involved, responses are generally reliable and, to a certain extent, valid.

It is easy to assume that the same process or processes are involved in all types of emotional self-report. However, it would be a mistake to make this assumption. In this connection, the current article has at least two major aims. First, we wish to document emerging evidence for discrepancies among different types of emotional self-report. Second, and more important, we seek to understand why people often say different things about emotions that they are currently experiencing than about emotions that they are not currently experiencing. In both aims, our review is broader and more integrative than prior literature reviews.

We propose that people access at least four types of knowledge when reporting on their emotions. These sources are ordered from the most specific to the most general. First, people could access their feelings directly (*experiential knowledge*). We argue that such access is limited to reports of current emotion. Second, people could attempt to retrieve specific moments from the past (*episodic memory*). Although past feelings in and of themselves cannot be recalled (in the sense of being reexperienced), they can

Michael D. Robinson, Department of Psychology, North Dakota State University; Gerald L. Clore, Department of Psychology, University of Virginia.

Support is acknowledged from National Science Foundation Grant SBR 9817649 to Michael D. Robinson and from National Institute of Mental Health Grant MH 50074 to Gerald L. Clore. We thank Joel Johnson, Stephanie Shields, and Lisa Feldman Barrett for encouragement concerning this work.

Correspondence concerning this article should be addressed to Michael D. Robinson, Department of Psychology, North Dakota State University, Fargo, North Dakota 58105. E-mail: michael.d.robinson@ndsu.nodak.edu

often be reconstructed by recalling relevant thoughts and event-specific details. Third, people could access a belief about the emotions that are likely to be elicited in a particular type of situation (*situation-specific belief*). For example, most of us believe that insults lead to anger, birthdays are associated with happiness, and vacations are enjoyable. And fourth, people could access beliefs about their emotions in general (*identity-related belief*). This last source of emotion knowledge includes the beliefs assessed by trait emotion scales (e.g., empathy), as well as social stereotypes (e.g., gender stereotypes). An example of the latter type of belief is people's commonly held stereotype that women are more emotional than men.

Each source of information—experiential knowledge, episodic memory, situation-specific belief, and identity-related belief—provides a person with a potentially different answer concerning his or her emotions. This sets the stage for divergence between different types of self-report (e.g., online vs. trait), a point that is covered in detail below. For now, it is useful to discuss three important distinctions relevant to the four sources of information. Specifically, it is useful to distinguish experiential knowledge from memory-related sources of information, episodic memories from semantic ones, and situation-specific beliefs from identity-related beliefs. These distinctions are considered in turn in the next three sections.

Experiential Knowledge Versus Memory

We assume that an emotional experience can neither be stored nor retrieved. For example, one can remember the fact that riding a roller coaster involved a thrilling sense of free fall, but one cannot retrieve that (or any other) actual experience from the ride. Indeed, if one could truly store and replay the actual experience of riding a roller coaster, there would be little point in riding it more than once. The same is true for emotional experiences. Although emotions can sometimes be generated by mentally reenacting a past situation (Wyer, Clore, & Isbell, 1999), the resulting experience is a new emotion created in the moment, not an old emotion called up from memory. Moreover, each emotional experience is subtly different, so much so that it might be said that a person never feels the same thing twice (Galvin, 1994; James, 1890). For this reason, any delay between an experience and its report necessarily means a loss of information.

These considerations suggest that *online reports* (i.e., reports of current feelings) must be distinguished from memory-based reports. Because experiential knowledge is more or less exclusive to online reports of emotion, people often say different things about their emotions when actually experiencing them than when they are not actually experiencing them.

So far, our approach overlaps to some extent with others (e.g., Loewenstein, 1996). However, there are important differences as well. One of these lies in the critical distinction that we make between the contributions of episodic and semantic memory. In so doing, we are able to suggest fundamental similarities between a variety of types of self-report (e.g., retrospective, prospective, and trait) that can share semantic, but not episodic, memory. For example, it is reasonable to think that gender-related biases in retrospection (M. D. Robinson, Johnson, & Shields, 1998) and in response to hypothetical vignettes (M. D. Robinson & Johnson, 1997) occur for similar reasons (see below for a review), namely

the intrusion of gender stereotypes. Prior accounts of retrospective biases are relatively mute on the similarities between retrospective and hypothetical reports of emotion. By positing different memory processes, we are also able to distinguish different types of memory biases in retrospection. In particular, the biases in episodic retrieval discussed by Kahneman (1999) appear to be quite different than the theory-based reconstruction discussed by Ross (1989). We make sense of these distinct retrospective biases by proposing that biases due to episodic versus semantic memory have distinct consequences.

Episodic Versus Semantic Memory

Although we argue that emotional experiences cannot be retrieved or reexperienced after they occur, it is important to note that many of the supporting contextual details can be recalled. For example, minutes after a roller coaster ride, a person would be able to remember the relative speed of the roller coaster, the number of steep drops, and the extent of jostling. Many of these contextual details would be helpful in reconstructing one's emotional experiences during the ride. In addition, the person might remember that they had, at one point during the ride, said to themselves "This is pretty exciting" or "I'm too scared to put my arms up." In other words, to the extent that they labeled their feelings during the ride, such thoughts (but not the feelings on which they were based) would be available for retrospection. Finally, recalling contextual details may aid the accuracy of retrospection by allowing the person to recreate an emotional state that is compatible with the emotion experienced at the time of initial occurrence (Lang, Kozak, Miller, Levin, & McLean, 1980; M. D. Robinson & Clore, 2001).

The ability to recall contextual details, however, declines quickly with the passage of time. In this respect, emotion-related memory is no different from other forms of memory (Eich & Schooler, 2000). With every moment that elapses between an event and its later recall, a predictable loss of detail occurs (for reviews, see Conway & Pleydell-Pearce, 2000; Rubin & Wetzell, 1996). With the loss of contextual details surrounding an emotional event, one would expect both random and systematic retrospective biases. Random biases would occur because one retrieves some event details but not others. Systematic biases would occur because, normatively, certain kinds of details (e.g., the most recent moments of an experience) are retrieved at the expense of other kinds (e.g., earlier moments of an experience).

At a certain point, however, accessible episodic memories become too few and too irrelevant to support reports of emotion based on episodic recall. At this point, we claim, there is a shift to semantic memory. If we are correct, such a shift should create an entirely new set of retrospective biases—specifically, belief-consistent ones. One major goal of this review is to document and explain these belief-consistent biases.

Our ideas concerning the distinction between episodic and semantic memory are compatible with previous work by Tulving and others (Tulving, 1984; 1993b; Wheeler, Stuss, & Tulving, 1997). Episodic memory is specific to a particular event from the past. Semantic memory is not tied to any particular event but rather consists of certain generalizations (i.e., beliefs) that are rarely updated. Whereas episodic memory decays rapidly, semantic

memory does not. Table 1 lists some other qualitative differences between these two forms of memory.

In general, there is good behavioral support for the episodic–semantic distinction (Begg & Nicholson, 1994; Doshier, 1984; Herrmann & Harwood, 1980; Neely & Durgunoglu, 1985; Shoben, Wescourt, & Smith, 1978). In addition, there is neurological evidence that supports the distinction (see Schacter, Wagner, & Buckner, 2000, for a review). Finally, there are functional reasons for these distinct types of memory (McClelland, McNaughton, & O'Reilly, 1995). In particular, one sometimes needs to learn new information quickly, a capacity of episodic (but not semantic) memory. On the other hand, one wants to develop relatively stable expectations about the world, a capacity of semantic (but not episodic) memory. To be able to learn quickly, it is important that forgetting also occurs quickly. For this reason, episodic memory is very time dependent. The two memory systems interact to a certain limited extent, but by and large they function independently.

Before concluding here, it is important to distinguish our model from Bartlett's (1932) notion of *schematic memory*. Schematic memory occurs when people recall episodic details from an event that are congruent, rather than incongruent, with their schemas. Available evidence suggests that this memory bias is not robust (Alba & Hasher, 1983; Stangor & McMillan, 1992; Zuroff, 1989). Indeed, people often recall more episodic details that are incongruent, rather than congruent, with their beliefs (Stangor & McMillan, 1992). In the context of our model, we do not assume that semantic memory biases episodic memory. Rather, we assume that people abandon episodic retrieval when emotion-related details are inaccessible. In this respect, our view of semantic memory is highly compatible with that of Dooling and Christiaansen (1977) who, in the context of text memory, stated: "With the passage of time, subjects have increased difficulty in retrieving passage-specific episodes. They compensate by using related information from semantic memory" (p. 428).

Situation-Specific Versus Identity-Related Beliefs

There are multiple types of self-report (e.g., hypothetical, trait) that discourage the use of episodic emotion knowledge (see below for an analysis). In such cases, we propose that people access semantic emotion knowledge instead. People possess two types of semantic emotion knowledge. On the one hand, they have beliefs about how particular situations are likely to influence their emotions (i.e., situation-specific beliefs). On the other hand, they have beliefs about their emotions in general (i.e., identity-related beliefs). We highlight these different types of semantic emotion

knowledge because different ratings may be obtained depending on which source(s) of belief an individual accesses when reporting on noncurrent feelings.

An emotional situation is inherently episodic and contextual. Situation-specific beliefs, on the other hand, are not episodic in nature, but rather generalized (i.e., semantic) theories of how situations are likely to influence emotion. As an example of this distinction, Wilson, Lisle, Kraft, and Wetzel (1989) compared estimations of how people would feel on their birthdays with how people actually felt on their birthdays. Within the present framework, the former type of hypothetical prompt triggers beliefs related to the influence of birthdays (i.e., they are good), whereas the latter prompt triggers the appraisal of current life details, many of which are likely to be unrelated to birthdays. In short, situation-specific beliefs, when compared with emotional situations, are relatively static and stereotyped.

When a given situation is not strongly associated with a given set of situation-specific beliefs, more general, identity-related beliefs are likely to be accessed. Such beliefs include those related to personality, as well as those related to social norms. As an example of the latter type of belief, Sprecher (1999) found that intact relationship partners had a tendency to report that their love for each other had increased since the last reporting period, despite the fact that online reports of love from the relevant time frames were not different. In our culture at least, a healthy romantic relationship is perceived as one that deepens and progresses over time (Lakoff & Johnson, 1999). Such a normative belief leads happy relationship partners to perceive progress even when none exists and to reconstruct past feelings to be consistent with this belief (Ross, 1989).

In summary, situation-specific beliefs are beliefs about how a particular situation is likely to influence one's emotions. By contrast, identity-related beliefs are beliefs about one's emotions in general (i.e., across situations). Having presented this last distinction, we are now ready to say more about our model.

An Accessibility Model of Emotional Self-Report

We have discussed four sources of information that are used in emotional self-report: experiential knowledge, episodic memory, situation-specific belief, and identity-related belief. We propose that people prioritize these sources of information, preferring to use the most specific source of information that is relevant to the judgment at hand. In this respect, although people would prefer to base all of their self-reports on experiential knowledge, this is not possible. The given type of self-report (e.g., retrospective) may render such information inaccessible. In such cases, people access the next most specific source of information, namely episodic memory. However, either because of the passage of time (e.g., retrospective reports) or because of a lack of availability (e.g., prospective reports), such episodic memories may be relatively inaccessible. In such cases, people access the next most specific source of information, namely situation-specific beliefs. However, not all situations are associated with emotional beliefs. In addition, the given type of self-report may not be particular to a given situation at all (e.g., trait reports). In such cases, people access the most general source of information, namely identity-related beliefs. Figure 1 depicts these processing priorities.

Table 1
Some Qualitative Differences Between Episodic and Semantic Knowledge

Quality	Episodic knowledge	Semantic knowledge
Type of thought	Experiential	Symbolic
Type of memory	Autobiographical	Conceptual
Type of organization	Loose	Tight
Event-specific	Yes	No
Time-dependent	Yes	No
Susceptible to forgetting	Yes	No

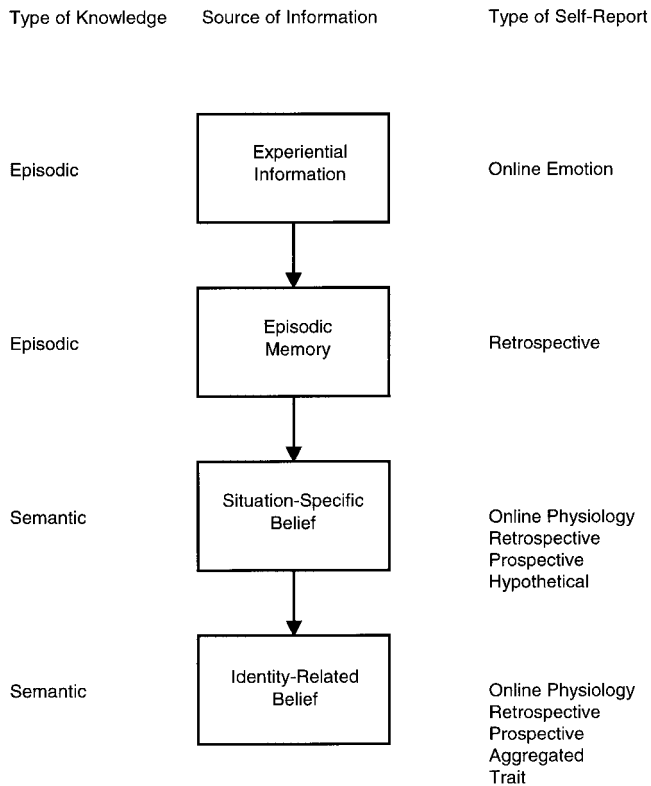


Figure 1. Four sources of information in emotional self-report. The left column notes that both experiential information and episodic memory are episodic in nature, whereas both situation-specific and identity-related beliefs are semantic in nature. The middle column depicts the processing priorities. The right column indicates the type of self-report that is most likely to be based on a particular source of information.

As indicated in the left column of Figure 1, both experiential knowledge and episodic memory are episodic. That is, both knowledge sources pertain to particular events that occur in real time. By contrast, both situation-specific beliefs and identity-related beliefs are semantic. That is, both knowledge sources pertain to generalizations about emotion that are decontextualized, conceptual, and largely independent of daily experiences. The right column of Figure 1, finally, presents the type of self-report that we think is likely to be based on that source of information. For example, experiential knowledge is accessible only for online reports of emotion.

Principles of Accessibility

In addition to Figure 1, it is useful to characterize our model in terms of the following three principles.

Relative accessibility. The relative contributions the four sources of information—experiential knowledge, episodic memory, situation-specific belief, and identity-related belief—to emotional self-reports depends on their relative accessibility with respect to the judgment at hand.

Dominance. If more specific (e.g., episodic memory) and less specific (e.g., situation-specific belief) sources of information are accessible and relevant, the more specific source of information is

used instead of the less specific source of information. Thus, experiential knowledge dominates episodic memory and episodic memory dominates semantic memory.

Evanescence. Experiential information cannot be stored in memory and episodic memory declines quickly with the passage of time.

In the body of this article, we use these three principles to understand discrepancies between different types of emotional self-report (e.g., online vs. trait). As a helpful overview of findings, we first apply our model somewhat generally to the different types of self-report that have been used in the literature.

Types of Self-Report

Investigators have examined a number of different reporting formats and content areas in understanding emotional experience. A broad distinction can be made between online reports and those that are not online, and we aim to show how the relative accessibility principle is important to understanding this distinction. We also review research on self-reports of physiological symptoms, reports that share important features with both online and noncurrent reports. When considering retrospective reports, we make the distinction between retrospective biases that are due to episodic memory versus those that are due to semantic memory. Finally, we discuss the difference between situation-specific and identity-related beliefs. The distinction has special relevance to retrospective, prospective, and hypothetical self-reports. An analysis of each type of self-report reveals differences in the accessible information that the reporter can draw on, as well as documents how these differences can be understood as special cases of our general accessibility model.

Online emotion reports. An assumption of our model is that emotions are multifaceted phenomena that include distinctive subjective experiences. Hence, even when emotions are elicited by stimuli and concerns that are not focal in awareness, people generally have access to them through the subjective experience component (Clore, 1994). In arriving at online emotion reports, these emotional experiences usually overwhelm prior beliefs about one's emotion, as indicated by the dominance principle.

Online reports of physiological symptoms. People are sometimes asked to report on their physiological processes and symptoms. For example, the experience of arousal, an important contribution to emotional experience, is sometimes thought to be based on activation of the sympathetic nervous system (e.g., Schachter & Singer, 1962). However, research has demonstrated that people have comparatively poor access to their bodily reactions (Pennebaker, 2000). For this reason, they often make inferences about their bodily processes by using shared as well as idiosyncratic theories of how situational factors affect the body (i.e., situation-specific beliefs). The lack of direct access to bodily processes also allows for identity-related beliefs about emotion to play a role. The relative reliance on situation-specific versus identity-related beliefs depends on the sufficiency of situational cues for making inferences. When clear-cut cues exist in the environment (e.g., the person is viewing an intense stimulus), situation-specific beliefs are used. When clear-cut situational cues are lacking, more general identity-related beliefs are used.

Retrospective emotion reports. Across a wide variety of tasks, memory for specific episodic details declines as a power function

of time since encoding (i.e., a steep loss initially, a more gradual loss thereafter; Rubin & Wetzel, 1996). Memory for emotional events is no different. There are two consequences to this steep loss of episodic information. First, more memorable moments or details of an emotional event disproportionately affect retrospective estimates of emotion (Kahneman, 1999). This is a bias due to episodic memory. Second, there is a gradual decline in the accessibility of episodic information and therefore an increased reliance on more generalized beliefs about emotion to fill in the details. This is a bias due to semantic memory.

As we discuss when reviewing relevant research, emotion-related beliefs are sometimes normative in nature (e.g., "Women are more emotional") and sometimes idiosyncratic to the person (e.g., "I am an anxious person"). Beliefs about emotion may be either situation-specific (which are general, despite being situation-related; e.g., "Public speaking is stressful") or identity-related (e.g., "I am a stressed person"). As with online reports of physiological symptoms, the relative reliance on situation-specific beliefs and identity-related ones depends on whether a person can access situation-specific beliefs with clear relevance. By contrast, to the extent that a situation is not associated with a particular set of beliefs, an individual is more likely to rely on identity-related beliefs when considering his or her emotions in retrospection (see Figure 1 priorities).

Prospective emotion reports. People are sometimes asked to predict their emotions in the future, and such predictions may play a substantial role in behavioral choices (Loewenstein & Schkade, 1999) and current feelings (Totterdell, Parkinson, Briner, & Reynolds, 1997). For example, the anticipation of anxiety in a given situation may be more important than the actual experience of anxiety in that situation to the maintenance of panic-related disorders and phobias (Barlow, 1991). When people predict their future feelings, they lack any of the specific episodic details that characterize retrospective reports. As a consequence of this, beliefs about emotion perhaps play a larger role in prospective (vs. retrospective) reports. As with retrospective emotion reports, however, the relative reliance on situation-specific versus identity-related beliefs depends on the sufficiency of situational cues for triggering a situation-specific belief. When situational cues are relatively clear (e.g., "How will you feel before you give your presentation at work?"), situation-specific beliefs are accessed. When situational cues are lacking (e.g., "How will you feel a month from now?"), identity-related beliefs will be accessed. As we demonstrate, it is important to take into account the clarity of situational cues when reconciling different findings pertaining to anticipated emotions.

Hypothetical emotion reports. Hypothetical emotion reports are very much like prospective ones, in the sense that people are estimating their reactions without access to episodic information specific to the relevant situation. However, there may be differences in the beliefs cued by anticipated versus hypothetical reports. Hypothetical reports are generally given with reference to a particular situation, whereas prospective reports can be given in the absence of any relevant situational cues except those that are self-generated (e.g., "How will you feel next week?"). Because descriptions of specific situations are integral to hypothetical prompts, beliefs about these situations are likely to constitute a primary influence on judgments of emotion. In addition, hypothetical (vs. prospective) reports may discourage reference to identity-

related beliefs precisely because they are supposedly related to the effects of situations rather than to differences between people. (In this connection, see Schwarz, 1999, for evidence of different attitude reports when a questionnaire is ostensibly administered by a social institute as opposed to a personality institute.) Because normative reactions are perceived as the object of hypothetical prompts, such prompts may be especially likely to trigger normative theories about situational influence.

Time-inclusive emotion reports. People are sometimes asked to report on their emotions over an hour, a half-day, a day, or longer. People are also often asked to report on their emotions in general, a format that seems to act like an especially wide time-inclusive frame. Because of the special status of "in general" reports within the personality literature, we often refer to this type of time-inclusive format as a *trait* report. All time-inclusive reports are necessarily retrospective (e.g., how I felt during the last hour includes how I felt an hour ago), although retrospective reports do not necessarily involve multiple time frames (e.g., how I felt at the beginning of this hour). As such, time-inclusive reports should be subject to some of the same biases (such as peak and recency effects, Kahneman, 1999) that characterize retrospective reports. However, time-inclusive reports also introduce another factor in the sense that a person is asked to average over particular moments in time. Research on frequency estimates indicates that people tend to adopt estimation (rather than recall) strategies when a number of events are relevant (Blair & Burton, 1987). Progressively wider time frame prompts make it increasingly likely that an episodic recall strategy is abandoned in favor of a semantic (i.e., belief-based) one. Toward the end of this article, we present new evidence from our lab (M. D. Robinson & Clore, 2002) that supports this view of time-inclusive emotion reports.

To summarize our analysis of reporting formats, online reports of emotion should primarily reflect experiential knowledge. This dependence on experiential knowledge differentiates online reports of emotion from all of the other reporting formats considered. By contrast, online reports of physiological symptoms are expected to be more dependent on semantic knowledge (i.e., beliefs), precisely because people have comparably poor access to their bodily reactions. Retrospective emotion reports are likely to be subject to memory-related biases of two distinct types. First, to the extent that episodic details are relatively accessible, retrospective reports of emotion should be subject to episodic memory biases such as peak and recency effects. Second, to the extent that episodic details are relatively inaccessible, retrospective reports of emotion should be subject to semantic memory biases. Prospective emotion reports, even less constrained by any specific episodic details, are largely driven by semantic emotion knowledge. When situation-specific beliefs are accessible and relevant, they are used; when they are not accessible, identity-related beliefs are used. Hypothetical emotion reports, like prospective ones, seek estimates in the absence of specific episodic details. However, in hypothetical emotion reports, situations are often described in enough detail to differentially trigger beliefs about situational influence. Finally, time-inclusive emotion reports combine retrospection with the necessity of integrating across multiple time frames. The latter process may be especially difficult when an individual is asked to integrate a large number of emotional moments. To the extent that integration becomes difficult, that

person may abandon such efforts and instead access semantic emotion knowledge.

Introduction to Literature Review

By way of introduction to our literature review, we should make several points to clarify our theoretical biases. We use the term *beliefs* to emphasize the semantic, generalized nature of such knowledge rather than to imply that there is inherent falsehood in relying on this source of information. Generalized beliefs about the self clearly have some validity, as revealed by studies of self–other agreement in behavioral traits (Fuhrman & Funder, 1995; Funder, 1995) and emotional experience (Watson & Clark, 1991). Nevertheless, there are other beliefs—such as those related to gender differences in emotional experience—that may be largely erroneous (Feldman Barrett, Robin, Pietromonaco, & Eysell, 1998). Although our review touches on these issues, its primary concern is with the processes that contribute to self-report.

Our review is primarily concerned with self-reports of emotion and physiological symptoms rather than with other manifestations of emotion such as behavior, facial expressions, or bodily reactions. Also, although a number of reviews make distinctions between the related constructs of mood, emotion, and feeling (e.g., Clore, Schwarz, & Conway, 1994; Rosenberg, 1998), we do not emphasize those distinctions here. In this respect, our review is concerned with hedonic experience broadly. For the sake of clarity, furthermore, research is reviewed by content area rather than by accessibility principle or type of self-report. The first section examines whether there is a simple answer to the question “Are women more emotional than men?”

Gender Stereotypes and Reports About Emotion

Research on gender stereotypes of emotion reveals two distinct stereotypes. First, there is a broad stereotype centered on emotion intensity. People tend to believe that women are more emotional than men (Shields, 1987; Widiger & Settle, 1987; J. E. Williams & Bennett, 1975). Indeed, notions of the stoic male and the reactive female are arguably central to definitions of masculinity and femininity (Shields, 1995), often defined in terms of agency and communion (Cross & Madson, 1997; Eagly & Wood, 1991). Second, there are more specific, although less robust, stereotypes centered around particular emotions congruent with agentic versus communal roles. Women are thought to experience more negative self-directed emotions that are social in nature (e.g., shame, embarrassment) as well as more positive other-directed emotions that are social in nature (e.g., gratitude, sympathy). By contrast, men are thought to experience more positive self-directed emotions that are self-focused in nature (e.g., pride, self-satisfaction) as well as more negative other-directed emotions that are self-focused in nature (e.g., anger, hostility; Birnbaum, Nosanchuk, & Croll, 1980; Feldman Barrett & Morganstein, 1996; J. T. Johnson & Shulman, 1988; M. D. Robinson et al., 1998; Shields, 1991).

On trait self-report scales, furthermore, one tends to find sex differences in emotion that are congruent with stereotypes, perhaps with the exception of anger and hostility (Balswick & Avertt, 1977; Eisenberg & Lennon, 1983; Feldman Barrett et al., 1998; Shields, 1991; Stapley & Haviland, 1989; Tangney, 1990). For example, in a literature review, Eisenberg and Lennon (1983)

documented large sex differences in self-reports of trait empathy (e.g., “Seeing people cry upsets me”), and we have also observed similar large sex differences in our own research (e.g., M. D. Robinson, Robertson, & Syty, 2002). With reference to self-conscious emotions, Tangney (1990) found that women reported more shame and guilt than men, whereas men reported more pride than women (see also Stapley & Haviland, 1989). With reference to anger and hostility, however, sex differences tend to be weak, nonexistent, or sample-dependent (Nolen-Hoeksema & Rusting, 1999; Scherer, Wallbott, & Summerfield, 1986). Given more robust sex differences on trait scales assessing empathy-related (Eisenberg & Lennon, 1983) and self-conscious (Brody & Hall, 1983) emotions, several reviews have argued that the less robust differences centered on the experience of anger are actually consistent with gender stereotypes (Manstead, 1992; Shields, 1991). Specifically, a tendency for women to report more intense emotions generally may counteract their tendency to report less anger (Manstead, 1992).

Just as gender stereotypes of emotionality in general are more robust than those concerned with specific emotions (Brody & Hall, 1993; Shields, 1991), sex differences on scales measuring emotionality in general tend to be more robust than sex differences on scales measuring trait differences in specific emotions (Brody & Hall, 1993; LaFrance & Banaji, 1992; Shields, 1991). For example, on a trait measure of affective intensity (Larsen & Diener, 1987), women routinely score higher than men (Diener, Sandvik, & Larsen, 1985; Fujita, Diener, & Sandvik, 1991). Women, in comparison with men, also (a) report themselves to be more emotionally expressive (Kring, Smith, & Neale, 1994), (b) endorse emotionality as more descriptive on trait scales (Spence, Helmreich, & Stapp, 1975), (c) recall emotional memories more quickly and more frequently (Davis, 1999), and (d) recall emotional events as more intense (Seidlitz & Diener, 1998). In terms of sex differences in how men and women process emotional events, women score higher on a dispositional measure of emotional awareness (Feldman Barrett, Lane, Sechrest, & Schwartz, 2000) and are more likely to ruminate about negative events that have happened to them (Nolen-Hoeksema, Parker, & Larson, 1994; Wood, Saltzberg, Neale, Stone, & Rachmiel, 1990).

Whereas sex differences on trait measures of emotionality tend to be robust and sometimes large (e.g., Eisenberg & Lennon, 1983), sex differences in online experience tend to be small or nonexistent (LaFrance & Banaji, 1992; Shields, 1991). Shields (1991), in her literature review, concluded that sex differences appear more frequently when retrospective (vs. online) reports are used. LaFrance and Banaji (1992) concluded that gender differences appear more frequently when direct (i.e., explicit) rather than indirect measures of emotion are used, and when global (e.g., “How emotional are you?”) prompts are used rather than prompts concerning specific emotions. Eisenberg and Lennon (1983) concluded that sex differences in trait empathy were large, but that sex differences in response to particular stimuli were negligible. Eisenberg and Lennon also concluded that behavioral and physiological measures of empathetic distress were not consistent with sex differences in trait empathy. Indeed, in terms of physiological reactivity, it is often the case that men appear to be more reactive to current emotional stimuli than women (LaFrance & Banaji, 1992; Manstead, 1992).

Extant evidence is consistent with the claim that sex-related beliefs are often incorporated into the self-concept (Cross & Madson, 1997; Cross & Markus, 1993; Josephs, Markus, & Tafarodi, 1992) and that such beliefs differentially influence retrospective and trait reports of emotion relative to online reports (LaFrance & Banaji, 1992; Shields, 1991). However, a weakness of reviews is that they necessarily make comparisons across different samples as well as different reporting formats. A number of recent studies have addressed this weakness by making comparisons within the same sample of participants. This newer evidence is consistent with prior reviews as well as with the accessibility model offered in this article.

In one set of studies, M. D. Robinson and Johnson (1997) created a set of hypothetical scenarios relevant to both stress and emotion. Reasoning that people have gender stereotypes about emotion, but not about stress, M. D. Robinson and Johnson asked participants whether they would experience more emotion than stress or more stress than emotion in response to specific scenarios. They also asked whether *stress* or *emotion* was a better label for how participants feel in troubling situations in general. As expected, there were no gender differences in response to the specific scenarios, but women reported experiencing emotion more frequently in response to the general prompt. Thus, specific information about a situation, even in the hypothetical, was sufficient to eliminate gender differences in emotion. This provides support for the prediction that people rely on identity-related beliefs (e.g., gender stereotypes) only when situation-specific information is relatively inaccessible.

In another investigation, M. D. Robinson et al. (1998) induced emotion in the lab through the use of a word game competition. Participants were paired with a partner, given an opposing team, and asked to defeat the opposing team by outscoring them on a timed test of word listing. The authors expected that the situation would be sufficiently involving to elicit a variety of emotions. On the basis of prior work on gender stereotypes, positive self-directed (e.g., pride) and negative other-directed (e.g., anger) emotions were combined to form a male-stereotypic scale. By contrast, a female-stereotypic scale consisted of negative self-directed (e.g., guilt) and positive other-directed (e.g., sympathy) emotions. By random assignment, participants were assigned to one of three conditions. Those assigned to an online condition played the game and then reported on their emotions immediately afterwards. Those assigned to a retrospective condition played the game, but were not asked about their emotions until a week later. Finally, in a hypothetical condition, participants only received a description of the game and predicted their likely emotional reactions.

The results of the M. D. Robinson et al. (1998) study were in accord with predictions. Specifically, self-reports obtained in the online condition did not conform to gender stereotypes, and observer ratings of expressed emotion also did not vary by the sex of the target. By contrast, self-reports were gender-stereotypic within both the retrospective and hypothetical conditions. In these conditions, but not in the online condition, men reported more intense male-stereotypic emotions and women reported more intense female-stereotypic emotions. These results show that the accessibility of experiential information influences whether gender stereotypes are used in emotion reporting. When such information is highly accessible (online condition), gender stereotypes have little influence. When such situational information is rendered less

accessible, either because of the passage of time (retrospective condition) or because of the lack of relevant experiential data (hypothetical condition), gender stereotypes do influence emotion ratings.

It is noteworthy that hypothetical details were sufficient to eliminate gender differences in the M. D. Robinson and Johnson (1997) study but not in the M. D. Robinson et al. (1998) study. The discrepancy presumably reflects the fact that there are a variety of sources of belief about one's emotions, of which gender stereotypes are only one. M. D. Robinson et al. (1998) asked participants to predict their emotional reactions to a laboratory word game competition, a situation that they had not experienced in the past. The M. D. Robinson and Johnson (1997) hypothetical scenarios, by contrast, were more representative of emotional experiences in real life and therefore more likely to cue situation-specific beliefs rather than the identity-related ones particular to gender stereotypes.

Nevertheless, when M. D. Robinson and Johnson (1997) asked participants to estimate the intensity of their reactions, women estimated that their feelings, whether stress or emotion, would be more intense than men's. Although this was more pronounced for responses to troubling situations in general than for responses to the specific situational prompts, the gender difference in intensity was significant for both types of prompts. M. D. Robinson and Johnson (1997) speculated that intensity ratings are more global—that is, less tied to particular situations—than frequency ratings (see Thomas & Diener, 1990, for related evidence). A similar conclusion was reached by LaFrance and Banaji (1992), and conceptually similar findings were reported by Feldman Barrett et al. (1998), a study to which we now turn.

Feldman Barrett et al. (1998) asked men and women to report on their emotionality using trait self-report scales. There were pronounced sex differences on the trait scales of emotionality, with women scoring higher on scales relating to affect intensity, openness to feelings, anxiety, and interpersonal warmth. The same participants were also asked to report on their emotions following daily social interactions, using a modified version of the Rochester Interaction Record (Reis & Wheeler, 1991). The daily experience ratings were made for 7 days, no more than 15 min after each interaction. In contrast to the trait reports, there were no sex differences in the intensity of seven specific emotions following daily interactions. Participants had also been asked to report on the intensity of their experience (emotion nonspecified) following each interaction as well as on the extent to which they expressed their emotions in the interaction. On these two global items, women gave higher ratings than men. Thus, independent of the accessibility of experiential information, it appears that global ratings of emotionality are more subject to belief-related influences than are ratings of specific emotion terms (LaFrance & Banaji, 1992). More generally, however, the findings of Feldman Barrett et al. (1998) are quite consistent with the present analysis. Furthermore, because these findings are consistent with a previous study (Feldman Barrett & Morganstein, 1996) as well as with prior reviews (Eisenberg & Lennon, 1983; Shields, 1991), they are particularly compelling. Gender stereotypes about emotion, these studies suggest, are a far more important influence on trait and time-inclusive self-reports than on online reports of emotion.

Although we have been impressed by the lack of gender differences obtained online, we cannot preclude the possibility that online differences can sometimes be found (e.g., Grossman &

Wood, 1993). However, our points are less concerned with whether gender differences in emotion exist, and more concerned with the processes by which gender-related beliefs come to influence self-reports (see also Shields, 1991). The evidence is fairly conclusive, we think, that men and women believe that their online emotions differ more than they actually do. In the next section, we review comparable evidence within an emerging literature on the culture–emotion relationship.

Cultural Stereotypes and Reports of Emotion

For a number of years, psychologists have known that there are robust cultural differences in happiness and life satisfaction. Relative to people from European or North American countries, people from Asian countries tend to report less happiness (Diener, Diener, & Diener, 1995; Diener, Suh, Smith, & Shao, 1995; Veenhoven, 1993). A parallel difference in happiness emerges between European and Asian Americans (Oishi, Wyer, & Colcombe, 2000; Schkade & Kahneman, 1997). Is there something about living in an individualistic society that promotes happiness? Is there something about living in a collectivistic society that interferes with happiness? The answer to both questions appears to depend on the type and timing of emotional self-report.

In large-scale studies of culture and emotion (e.g., Diener et al., 1995), there is little opportunity for measuring a person's emotional experiences repeatedly over time. Instead, respondents are asked to characterize their happiness and life satisfaction generally. For example, the Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985) asks respondents to characterize their lives as a whole without specifying any relevant time frame. Note that if people were to consult episodic memory in making such judgments, they would find themselves completely overwhelmed. They would have difficulty remembering and integrating all of the emotional moments that define life "as a whole." Furthermore, they would encounter difficulties deciding how to weigh specific life domains such as education, health, family, social relations, and so forth. Because episodic memory would not be useful in making such judgments, our model assumes that people would default to semantic emotion knowledge instead.

Thus, we can be relatively confident that Asian Americans believe that they are less happy than European Americans do. A different picture emerges, however, when emotion is sampled online. In one study, for example, Scollon, Diener, Lucas, Oishi, and Biswas-Diener (2001) obtained three measures of positive affect from five distinct cultural groups (Hispanic, European, and Asian Americans, as well as people from Japan and India). First, participants were asked to rate their positive affect in general (trait report). Second, they were asked to report on momentary experiences in daily life through the use of Palm Pilot computers (online report). And third, 1 week after completing the momentary experience part of the study, they were asked to retrospectively characterize their mood states during the entire week of experience sampling (retrospective report).

In this study (Scollon et al., 2001), online differences in positive emotion were slight. However, retrospective and trait reports showed more robust cultural differences. In particular, Hispanic and European Americans reported more positive affect in their retrospective and trait reports than the other three (Asian) groups did. Furthermore, a regression analysis supported the idea that the

non-Asian groups exaggerated their positive affect in retrospective, at least relative to the Asian groups in this study. Thus, this study suggests that, relative to online experiences of positive affect, Asians underestimate, whereas non-Asians overestimate, their positive affect on reporting formats that discourage episodic retrieval (e.g., retrospective and trait reports).

Similar results were found in a series of studies by Oishi (in press). In one study, for example, Asian and European Americans were asked to carry a Palm Pilot around for a week and to report on their momentary positive affect (e.g., happy) whenever signaled to do so by the computer (online report). At the end of the week, participants indicated the extent to which they felt positive affect during this entire week (time-inclusive report). In their online reports, Asian Americans reported somewhat more frequent positive emotions than European Americans. In their time-inclusive reports, by contrast, Asian Americans reported somewhat less frequent positive emotions than European Americans. The Culture (Asian American vs. European American) \times Type of Report (online vs. time-inclusive) interaction was reliable ($p < .05$). Moreover, similar results were found in the other studies (see also Oishi & Diener, 2002; Oishi & Schimmack, 2002). In sum, whereas Asian Americans do not appear less happy than European Americans when online reports are considered, they do appear less happy when retrospective, time-inclusive, or trait reports are considered.

Why do Asian Americans underestimate, whereas European Americans overestimate, their positive affect in retrospective reports? Perhaps Asian Americans differentially attend to and rehearse negative events relative to positive ones, whereas the reverse is true of European Americans. If so, it is possible that biased episodic memories are responsible for the Culture \times Type of Report interactions detailed above. This appears not to be the case. Specifically, in several experiments using carefully controlled encoding conditions, Oishi (in press; Oishi & Schimmack, 2002) has found that Asian and European Americans recall an equal number of positive and negative events from the past. Furthermore, he has shown that retrospective emotion reports are uncorrelated with the valence of episodic memories that can be recalled. Such results suggest that biases in episodic memory are not responsible for the rating biases that diverge by culture.

Instead, we view it likely that (a) Asian Americans believe that they are less happy than European Americans and (b) such beliefs differentially contribute to retrospective and time-inclusive reports of emotion relative to online ones. Indeed, Diener, Scollon, Oishi, Dzokoto, and Suh (2000) provided data that are consistent with this model. In their study, cultural norms about happiness predicted the discrepancy between relatively specific (e.g., professors) and relatively global (e.g., education) life satisfaction judgments. In explaining these results, Diener et al. (2000) proposed that people recall episodic details when rating relatively specific life domains but that they rely on (culture-related) beliefs when rating their satisfaction with global life domains (see also Schwarz & Strack, 1991). As should be clear, such results are consistent with the accessibility model offered in this article.

In sum, cultural differences in happiness are more apparent on self-reports that discourage the use of episodic memory (e.g., time-inclusive, trait, and retrospective). In this respect, cultural differences in emotion, like gender differences in emotion, appear to be related to (culture-related) beliefs about emotion. A salient

role for belief is also found when we examine the menstruation–mood relationship.

Menstruation and Reports About Emotion

Do women experience an increase in negative affect just prior to menstruation? Although both men and women believe that this is the case (AuBuchon & Calhoun, 1985), no one should mistake this belief for reality. Reports of emotional distress during the premenstrual period are more exaggerated retrospectively than online (Boyle & Grant, 1992; Olasov & Jackson, 1987; Slade, 1984). Indeed, online ratings of mood often show that there is no relation between phase of cycle and negative mood, although there is some increase in physiological symptoms such as pain and water retention (Ruble & Brooks-Gunn, 1979).

In a particularly informative study, McFarland, Ross, and DeCourville (1989) had female participants make daily mood ratings 4 to 6 weeks in a row. Ratings of negative affect did not vary by phase of cycle. In addition to these online ratings, however, all participants were asked to make retrospective reports approximately 3 weeks into the study. They were asked to recall their feelings from 2 weeks earlier, after reading through an event diary that they had completed on the particular day in question. Some women had been menstruating on this day, whereas other women had not. As expected, retrospective ratings of mood were negatively biased among the group of women who had been menstruating on that day but not among the control group. Like the gender stereotype research discussed above, this study identifies specific beliefs about emotion, finds little evidence for these beliefs in online ratings (e.g., Feldman Barrett et al., 1998), but finds a correspondence between the beliefs and self-report under retrospective reporting conditions (e.g., M. D. Robinson et al., 1998).

In the McFarland et al. study (1989), participants were also asked to rate their “typical” feelings during different phases of the cycle—premenstrual, menstrual, and intermenstrual. These responses were used to measure participants’ idiosyncratic theories about menstruation and mood. The authors found a systematic relationship between the idiosyncratic theories and the magnitude of the retrospective bias: The stronger a woman’s belief that her feelings are negatively influenced by menstruation, the greater was her tendency to retrospectively report her feelings as more negative than they actually were. Similarly, other research indicates that reports of premenstrual distress are higher among those with greater expectations of such distress (Brooks-Gunn & Ruble, 1980), as well as higher among those with a more traditional feminine role orientation (Gough, 1975).

We assume that beliefs about menstruation and mood are not a particularly salient basis for rating one’s mood, even in the retrospect. However, the accessibility of such beliefs is subject to priming by the reporting context. In this connection, AuBuchon and Calhoun (1985) randomly assigned women to menstruation salience or control conditions simply by telling them that the study was concerned with menstruation and mood or by withholding this information. The retrospective ratings of the menstruation salience group exhibited a cyclic variation that was consistent with beliefs about menstruation and mood, whereas the retrospective ratings of the control group did not. In another study of belief priming, Ruble (1977) told women they were either premenstrual or not, and then collected measures of symptom reporting. Those told they were

premenstrual reported more negative symptoms than those told they were not premenstrual, irrespective of their actual phase of cycle. Thus, situation-specific beliefs, like those associated with menstruation and mood, can be primed by the reporting context, thereby influencing emotion judgments when episodic details are relatively inaccessible.

To summarize the research reported in this section, we link the various findings to our accessibility model of self-report. First, the research identifies a set of beliefs that have relevance to emotion. Specifically, both men and women tend to believe that mood is more negative during the premenstrual phase of the cycle. Second, consistent with the research reported above on gender and emotion, research on menstruation and emotion finds systematic discrepancies between hypothetical and retrospective reports versus those obtained online. Whereas both retrospective and hypothetical self-reports demonstrate an association between mood and phase of the cycle, online mood reports do not tend to find such an association. Third, individual differences in beliefs about menstruation and mood predict the degree to which retrospective reports of negative affect are biased relative to online reports. Such findings show that normative beliefs are not uniformly held, but differ in their strength, as well as in their influence on self-reports, among individuals. And fourth, beliefs about menstruation and mood can be primed by situational factors, resulting in retrospective reports that are more belief-consistent. Altogether, these results provide an excellent window on the processes involved in emotional self-report.

Having reviewed three particular areas of research—on gender, culture, and menstruation—within the context of our model, we now turn to a broader review of retrospective and prospective biases in emotional self-report.

Other Retrospective and Prospective Biases

In the previous section, we discussed the study by McFarland et al. (1989) involving retrospection and reports about premenstrual emotion. In addition to this study, Cathy McFarland and Michael Ross have amassed a good deal of evidence for retrospective biases in self-report (for a review, see Ross, 1989). For example, McFarland and Ross (1987) tracked romantic relationships over a 2-month period. Over this period, some relationships had become closer, whereas others had deteriorated. Participants were asked for their perceptions of the relationship at both times, and at Time 2, were also asked to retrospect on their feelings 2 months earlier. Retrospective reports were systematically biased in the direction of participants’ current perceptions. If their relationship had improved, they rated their earlier feelings as more positive than they actually had been. If their relationship had deteriorated, by contrast, they rated their earlier feelings as more negative than they actually had been.

The McFarland and Ross (1987) study involves beliefs about stability. People assume their relationships are more stable than they actually are, and these beliefs influence the reconstruction of past feelings. However, even within the context of romantic relationships, it is possible to elicit beliefs about change by asking a different question. In a 4-year longitudinal study, Sprecher (1999) asked intact couples whether their love, commitment, and satisfaction had declined or improved since the last measurement period. At five times separated by a year, participants were also asked to fill out contemporaneous measures of love, commitment,

and satisfaction. Analyses revealed a significant tendency for intact relationship partners to believe that their relationships had improved during the previous year, although a longitudinal analysis revealed no evidence for increased love and commitment. Those who thought their relationship had improved also reported more current relationship satisfaction, but this correlation disappeared when prior satisfaction ratings were controlled. Thus, beliefs about change were erroneous, based primarily on current satisfaction with the relationship.

Why would romantic partners say that their love and commitment had increased when it had not? According to Lakoff and Johnson (1999), our view of love is shaped by the cultural metaphor "love is a journey." There are numerous beliefs that follow from such a metaphor, but one principal implication is that love should be dynamic, progressing and deepening over time. The alternative is a "stalled" relationship, or worse, one in which the partners have "gone their separate ways." In short, normative beliefs about love include perceptions of increasing intimacy over time. Because accurately recalling one's love and commitment 1 year ago would be difficult, if not impossible, beliefs about change allow partners to see deepened love and commitment even when none exists.

Ross (1989) provided a powerful analysis for understanding some types of retrospective reports. According to his framework, one's past standing on a certain attribute is often inferred on the basis of one's current standing, in combination with beliefs about stability or change. There are numerous studies consistent with this framework (e.g., M. K. Johnson & Sherman, 1990; Levine, 1997). Biased reconstruction, however, does not necessarily involve beliefs about stability or change, as the McFarland et al. (1989) menstruation research demonstrates. Rather, beliefs about emotion can have direct effects on retrospective reports, leading to some incongruence between feelings at the time of experience versus estimations of those feelings at a later date. Because beliefs about emotion can, but need not, be associated with beliefs about stability or change, we view the belief-based reconstruction discussed by Ross (1989) as a specific case of semantic memory effects on retrospective ratings.

According to our model, there are important similarities among retrospective, hypothetical, and prospective reports of emotion. Specifically, in all cases, experiential information is lacking. However, in retrospective—but not prospective or hypothetical—reports, a person may be able to retrieve some episodic details that could be helpful in reconstructing their emotions. By contrast, because such episodic details are necessarily inaccessible when making prospective and hypothetical reports, such reports are particularly vulnerable to beliefs about situational influence. For example, questions such as "How will you feel when X happens?" are particularly likely to prime beliefs about situational influence.

As demonstrated by Wilson, Wheatley, Meyers, Gilbert, and Axsom (2000), people tend to overpredict their emotional responses to such prompts, precisely because the prompts cue theories of situational influence that are unconstrained by the episodic details of daily life. In response to the question "How will you feel if your football team wins (loses)?" the focal event (i.e., winning or losing) attains disproportionate salience in relation to the more mundane details of daily life. Thus, people think that their emotions will be more strongly affected by focal events than is actually the case. In a particularly informative study, Wilson et al. (2000)

tested a prediction of this model that is consistent with our accessibility approach. Reasoning that prospective biases were due to an underappreciation of the episodic details of daily life and an overappreciation of the focal event, the authors manipulated the accessibility of daily life details by asking some participants to think about their daily activities following a win or loss by the football team. As expected, participants primed to think about daily life estimated that their reactions to a win or loss by the football team would be less extreme in nature. As we detail below, a recent study by M. D. Robinson and Ryff (1999) provides converging evidence for the efficacy of this manipulation.

Other examples of focalism are easy to find. For example, participants in Stone, Hedges, Neale, and Satin (1985) were asked to characterize their mood states on Mondays as well as on other days of the week. Participants expressed the belief that their mood tended to be worse on Mondays than on other days of the week, but their daily mood ratings did not show such a pattern. In another study (Wilson et al., 1989), 97% of a belief-reporting group reported that their mood would be particularly good on their birthdays. The accuracy of this belief was assessed by calling one sample of participants on their birthdays and calling another sample on some other day. Incongruent with widely shared beliefs, there was no difference in mood between the two samples. Participants apparently experienced this "special" day as just another day, at least at the time of the survey.

People also expect their mood to be enhanced during vacations. To assess the consequences of this belief, Mitchell, Thompson, Peterson, and Cronk (1997) obtained prospective, online, and retrospective reports of vacation enjoyment. Prospective reports were always more rosy than online reports, and retrospective reports were more rosy in two of the three studies. The curvilinear pattern is particularly interesting. People not only overestimated their enjoyment before a vacation, but their retrospective reports matched their prior estimations to a greater extent than they matched their more recent online experiences.

What's a vacation like? Will you experience romance, relaxation, and intrigue? Perhaps, but if you are like us, you will also waste money, overindulge in food and drink, have many nonintimate interactions with strangers, and experience restless sleep and irregular body functions. By the end of your vacation, you will long for the comfort and regularity of home. Vacations, in short, are full of mundane and negative events, but these tribulations are generally underappreciated in prospective and retrospective reports (Thompson, 1997).

Reality does not always fall short of beliefs, though. In some cases, especially when people are anticipating negative events, they may overestimate the negativity of their reactions. For example, Totterdell et al. (1997) asked participants to predict their mood at work for a given day. They did so each morning and these predictions were compared with actual mood during the day. Perhaps anticipating the tasks and obligations that would befall them on a given day, mood predictions were overly pessimistic. They were also only very weakly correlated with mood on that day (5–9% shared variance). Indeed, people have a general tendency to believe that work is burdensome, and therefore a source of negative affect, despite the fact that it provides challenges that are generally conducive to optimal experience or "flow" (Csikszentmihalyi & LeFevre, 1989). By contrast, despite the fact that leisure experiences are often mind numbing and boring (e.g., TV view-

ing), people express a preference for leisure over work (Csikszentmihalyi & LeFevre, 1989).

A recent set of studies by Gilbert, Pinel, Wilson, Blumberg, and Wheatley (1998) provides even more dramatic evidence for pessimism in prospective estimates. Participants were asked to predict their emotional reactions to negative events such as the breakup of a romance (Study 1), the failure to achieve tenure (Study 2), or the defeat of their preferred gubernatorial candidate (Study 3). Across each of these studies, participants predicted that their emotional reactions to such events would be extreme and long lasting. However, when people actually experienced such events, their emotional reactions tended to be rather short lived and far less dire than predicted. Indeed, even seemingly terrible events such as an HIV diagnosis tend to have effects on emotional experience that pale in comparison to predictions about the influence of such events (Loewenstein & Schkade, 1999). Why? Prospective estimates are disproportionately influenced by beliefs about the influence of negative events on emotion. The more extreme the negative event, the more extreme the situational belief that is invoked. By contrast, one's reactions to a negative event occurs in the context of other daily life events (M. D. Robinson, 2000), but these configural elements are typically underappreciated in prospective and retrospective estimations.

It is important to note that different prospective prompts cue different beliefs and that the influence of any one set of beliefs depends on the nature of the prompt. When people predict their reactions to positive events like vacations (Mitchell et al., 1997), they access beliefs about the influence of positive events on emotion. When people predict their reactions to a negative event like relationship loss (Gilbert et al., 1998), they access beliefs about the influence of negative events on emotion. One can understand the extent to which people are overly optimistic or pessimistic about their feelings only by considering the prompt at hand.

A third type of prospective report, furthermore, seems to tap a third source of belief. When a particular event is not focal in prospective estimations, people tend to be overly optimistic that they will obtain positive outcomes (Taylor & Brown, 1988; Weinstein, 1980) and experience positive affect (Staats & Skowronski, 1992). People are overconfident in their predictions of their future behaviors, particularly in a socially desirable direction, largely because they underestimate the variability of intervening situational influences (Dunning, Griffin, Milojkovic, & Ross, 1990; Vallone, Griffin, Lin, & Ross, 1990). In one study, for example, participants were asked whether they would volunteer 3 hours of their time if asked by a representative of the American Cancer Society (Sherman, 1980). Although 47.8% of the prediction group reported that they would, only 4.2% of people did when an actual request was made. No doubt busy with their daily lives, the actual request was much more onerous in reality than in the hypothetical.

Several recent studies document the sources of information that contribute to overly optimistic expectations about future outcomes. Gilovich, Kerr, and Medvec (1993) presented participants with a set of ability tests and obtained predictions of performance at two different times. Initial performance estimates were obtained when the tests were relatively distant in the future, whereas more proximate estimates were obtained on the day of the tests themselves. As expected, participants expected to do better on the tests when their prospective reports were relatively distant from "the moment

of truth." Gilovich et al. reasoned that when performance tasks are close at hand, thoughts shift to the particular situation and its requirements. When performance tasks are more distant, however, such reality constraints are perceived as too distant to worry about or simulate. The lack of accessible reality constraints, furthermore, allows people to envision positive outcomes without considering the difficulties involved in achieving them. A fourth study confirmed this account, in that accessible thoughts about an ability test shifted from relatively more positive to relatively more negative as the moment of testing approached. Furthermore, these differences in accessible thoughts mediated the distant versus proximate difference in performance estimates, providing evidence for the claim that accessible thoughts serve as a basis for biases in prospective estimates.

Liberman and Trope (1998) further explored the nature of accessible information in long-term versus short-term prospective estimations. Their results indicate that, when an event is relatively distant, accessible thoughts tend to be focused on the desirability of the event. However, as the event in question becomes more proximate, people become more concerned about the feasibility of obtaining a desired outcome. In essence, reality constraints play a lesser role when an event is distant, but the particulars of a situation play a greater role when an event is close at hand. Indeed, when people entertain the prospect of desirable outcomes, they seem to ignore the fact that competing demands can undermine their chances for success (Liberman & Trope, 1998), and they also underestimate the time requirements involved in achieving any particular outcome (Buhler, Griffin, & Ross, 1994). These time constraints, as well as the limits of one's own abilities and the difficulty of the task at hand, become particularly accessible in the moment, however (Liberman & Trope, 1998). Thus, the differential accessibility of episodic constraints plays an important role in how people envision their future versus their present. As we reveal next, a similar analysis can be applied to prospective estimations of happiness, which tend to be overly optimistic (Staats & Skowronski, 1992).

M. D. Robinson and Ryff (1999) have found that people think they will be much happier in the future than in the past and present. Normatively, however, this belief is in error (Myers & Diener, 1995). The critical mechanism for this bias seems to be an underappreciation of episodic constraints. To test this idea, M. D. Robinson and Ryff asked people to think about stability or change in their lives. As expected, the stability group was less self-enhancing concerning their future affect, presumably because the limitations of their current life circumstances were accessible when rating their future happiness. Similarly, they found that people display less future self-enhancement with age, again because of perceived continuities between present and future circumstances: Estimations of future well-being become less biased with age because age-related constraints on the present self are expected to continue, and possibly worsen, in the future (see also Cross & Markus, 1991).

In summary, prospective and retrospective reports often diverge from online reports (see also Loewenstein & Schkade, 1999; Stone, Shiffman, & DeVries, 1999). The particulars of a given situation are a primary influence on current feelings and behavior, but they are underappreciated in prospective and retrospective estimations. Several studies provide causal support for the present accessibility account of such biases (e.g., M. D. Robinson & Ryff,

1999; Wilson et al., 2000), and several other studies demonstrate how different sources of information are accessed when an event is distant versus close at hand (e.g., Gilovich et al., 1993; Liberman & Trope, 1998). Reports of past feelings are often constructed on the basis of implicit theories of stability or change (Ross, 1989), but other beliefs—such as those related to the typical influence of particular situations—often constitute a direct influence on both retrospective and prospective reports. Prospective emotion reports depend on beliefs that are cued by particular prompts. Situation-specific beliefs are especially likely to play a role when questions include situational prompts, as when people are asked to predict their reactions to particular events. By contrast, when such prompts are not provided, people are likely to access other emotion-related beliefs. An important goal for future research, therefore, would be to specify more precisely the cues that render particular beliefs more or less accessible. By considering how particular prompts cue particular beliefs, the field will gain a more comprehensive picture of retrospective and prospective biases.

For the most part, we have been concerned with emotional experiences in this review. However, as illustrated in the next section, similar accessibility considerations pertain to the literature on reports of bodily symptoms.

Reports About Pain, Physiological Arousal, and Health Complaints

In this section, we consider research on the reporting of physiological symptoms and pain. The first line of research considers whether people have access to bodily arousal processes, and if not, whether their symptom reports can be influenced by situation-specific beliefs. The second line of research examines whether people can accurately remember their experiences of pain. In a subsequent section, we consider individual differences in reports of physiological symptoms. Altogether, the research highlights how accessible sources of knowledge influence physiological self-reports.

People have poor access to their physiological processes (Pennebaker, 1982). This includes measures such as heart rate, respiration, skin conductance, and blood pressure, as well as other mainstays of psychophysiology research. From the perspective of our model, this makes it particularly likely that reports of physiological responding are largely constructed on the basis of situation-specific beliefs. In a study consistent with this account, Pennebaker (1981) asked participants to monitor their heart rate while watching a series of emotion-relevant slides. The slides varied on dimensions of pleasantness and interest. On a within-subject basis, reports of heart rate were strongly related to the pleasantness ($r = -.72$) and interest ($r = .53$) of the slides. By contrast, these reports were only weakly related to actual variations in heart rate ($r = .12$), and similar results have been obtained for reports of respiration, skin conductance, and finger temperature (Pennebaker, 1982). It therefore appears that people make erroneous assumptions about their physiological responding on the basis of accessible information about the situation.

Reports of physiological symptoms can also be influenced by the accessibility of semantic knowledge related to health. For example, Skelton and Strohmets (1990) asked participants to complete the Pennebaker Inventory of Limbic Languidness (PILL; Pennebaker, 1982), a 54-item checklist of negative physiological

symptoms (e.g., nausea, chest pains, tender skin, etc.). One group completed the measure upon arrival to the laboratory, whereas the other group completed a semantic priming task first. Health-related cognitions were primed in the latter group by having people choose the more health-related word in a series of word pairs. As expected, PILL scores were quite a bit higher when these health-related cognitions had been primed than when they had not.

The results of Skelton and Strohmets (1990) suggest that somatic complaints are in part a function of the temporary accessibility of health-related information from semantic memory. Such findings help explain medical students' disease (Mechanic, 1972; Woods, Natterson, & Silverman, 1966), mass psychogenic illness (Colligan, Pennebaker, & Murphy, 1982), why psychogenic diseases spread by friendship rather than proximity at work (Pennebaker, 2000), and why physiological symptoms seem so much more distressing at the hospital than in other contexts (McCaul & Malott, 1984). In related experimental research, Zimmerman, Linz, Leventhal, and Penrod (1984; as cited in Cioffi, 1991) told some participants that their blood pressure was "a little too high," whereas Pennebaker (1982) told some participants that it was flu season. Both of these manipulations led to higher reports of relevant physiological symptoms, providing powerful evidence for constructive processes in symptom reporting (Cioffi, 1991).

A second line of research that we consider in this section concerns whether people can accurately remember their pain experiences. By and large, we suggest that they cannot. Pain, like other hedonic experiences, appears not to be stored in memory, as revealed by analyses of retrospective descriptions (Loewenstein, 1996; Strongman & Kemp, 1991). Thus, memories of pain, like prospective estimates of pain, have an as-if quality, suggesting that sources of information that are not experiential are operating when people are trying to estimate pain that they are not currently experiencing. The research of Rachman and Arntz and colleagues, in particular, reveals a number of discrepancies that distinguish online reports from those that are retrospective, prospective, or hypothetical (see Rachman & Arntz, 1991, for a review). For example, people have a tendency to overestimate their prior pain (Rachman & Bichard, 1988), and this tendency is enhanced by the length of the delay between online and retrospective reports (Rachman & Eyrl, 1989). Also, predictions of future pain are strongly influenced by recent experiences (Arntz & van den Hout, 1988). Together, these two findings suggest that some sources of information bias retrospective and prospective reports (relative to online ones) in a similar direction.

The research of Kahneman and colleagues provides an explanatory framework for some of the biases found by Rachman and Arntz (1991). In a representative study, Kahneman, Fredrickson, Schreiber, and Redelmeier (1993) asked participants to submerge their hands in ice-cold water for two trials. One trial consisted of 2 min in 14 °C water, whereas the other trial consisted of the same treatment, plus an additional 30 s at a slightly warmer, but still uncomfortable, temperature (15 °C). After the two treatments, participants indicated their preference for a third trial, which would be identical to one of the first two. Somewhat surprisingly, people indicated a preference for the longer trial, despite the fact that this longer trial produced a greater amount of suffering overall (Kahneman et al., 1993). Retrospectively, they reported that the longer trial was associated with lower peak suffering, and that this longer trial had been easier to cope with. Online ratings, however, did not

support this contention—suffering was equal during the initial period, and an additional amount of suffering was added in the longer trial. Similar results have been reported in other studies (Fredrickson & Kahneman, 1993; Redelmeier & Kahneman, 1996; Varey & Kahneman, 1992).

Varey and Kahneman (1992) suggested that retrospective estimations of pain are disproportionately influenced by peak distress, in combination with distress at the end of the pain episode. Thus, if a distressing event ends on a less distressing note, the entire event is viewed more favorably. According to Fredrickson and Kahneman (1993), this retrospective bias is due to several factors. First, retrospective reports are insufficiently sensitive to the duration of the pain episode. Second, “snapshots” of the pain episode—due to salience or recency effects—are particularly accessible when people are making their retrospective ratings.

To summarize the research reported in this section, retrospective symptom reporting is systematically biased by several factors. Peak and end effects exert a disproportionate influence on retrospective estimations, presumably because these portions of the pain episode are more accessible at the time of retrospective reporting. Such retrospective distortions are due to biases in episodic memory. In addition, as revealed in the earlier research reported in this section, people have poor access to their physiological processes. As a consequence, reports on such processes are influenced by beliefs about situational influence, or alternatively, by temporarily accessible semantic knowledge related to health.

For the most part, our review has focused on reports of experience per se. However, there are other emotion-related self-reports that are relevant to the proposed model, and we review research on some of these in the next section.

Beliefs About Causal Influence and Coping Dispositions

This section highlights several lines of emotion-related research that are relevant to our proposed model. Wilson, Laser, and Stone (1982) have asked whether people have insight into the causes of their mood. Shiffman and colleagues (see Shiffman, 2000) have asked whether people have insight into the causes of their smoking relapse. Finally, Stone and colleagues (Schwartz, Neale, Marco, Shiffman & Stone, 1999; Stone et al., 1998) have asked whether people are capable of characterizing their coping behavior. We highlight these lines of work because they have advanced the field’s understanding of how memory problems and emotion-related beliefs can compromise retrospective or time-inclusive reports relative to those obtained online.

Wilson et al. (1982) asked participants to rate their mood each day, as well as to assess a variety of factors that could have affected their mood such as the weather, the adequacy of their sleep, and their workload that day. Such reports were completed for 5 weeks, a large enough sample of days to assess correlations between the different event-related factors and mood for each participant. Following the daily assessments, participants were also asked to estimate the relationship between each of the 14 event-related factors and mood, on a -3 (*strong negative relationship*) to 0 (*no relationship*) to 3 (*strong positive relationship*) scale. By correlating actual and estimated weights for each of the factors for each of the participants, the authors were able to determine whether people had insight into the factors affecting their mood. Across participants and factors, the average correlation

between objective and subjective weights was .42, indicating some insight as well as some room for improvement.

In assessing the sources of insight, Wilson et al. (1982) asked another group of participants, ones who had not made the daily ratings, to judge the typical relation between the 14 event-related factors and mood. Although they had not participated in the daily assessment phase and did not know the participants in question, their subjective weights correlated highly, indeed just as highly, with the objective weights obtained from the daily diary study ($r = .45$). That is, naive observers were just as accurate at predicting how the event-related factors influenced a stranger’s mood as participants were in assessing how these factors influenced their own mood. Furthermore, the more highly the daily diary raters’ subjective weights correlated with the observer group’s subjective weights, the more insight they displayed into the causes of their own mood. Wilson et al. (1982) interpreted these findings as indicating that both actors and observers access shared theories (i.e., beliefs) about the influence of events on mood, and that these shared theories were largely responsible for people’s insight into the factors affecting their own mood. To the extent that participants departed from the use of shared theories in predicting how events affected their own mood, they also displayed less insight into the causes of their own mood states (see also Wilson & Stone, 1985).

Like Wilson and colleagues, Shiffman and colleagues (see Shiffman, 2000, for a review) have also been concerned with theories of causal influence. In this case, the focus of investigation is on the factors that predict smoking relapse among people who are trying to quit. In several investigations, Shiffman and colleagues have used experience-sampling procedures to determine the objective factors that predict relapse. Following the experience-sampling reports, the relapsed smokers have been asked to retrospect on the factors that likely caused their relapse. By comparing retrospective and online accounts of relapse, one can then assess whether people have retrospective access to the causes of relapse. Shiffman’s (2000) conclusions are quite pessimistic concerning retrospective insight. In fact, retrospective accounts of the factors that caused smoking relapse were totally unrelated to the objective factors that caused relapse! One source of bias relates to negative affect. Retrospectively, relapsed smokers overestimate their negative affect just prior to relapse. Assuming that smokers’ retrospective accounts were largely driven by shared beliefs about the causes of relapse, Shiffman (2000) asked a naive group of participants, who were actually nonsmokers, to predict how several factors would play a role in relapse. Their accounts of relapse correlated as high as .77 with smoker’s retrospective accounts, but did not correlate with the objective factors predicting relapse.

Thus, Shiffman (2000) concluded that relapsed smokers were using shared theories of relapse in their retrospective reports. Furthermore, he concluded that such belief-driven accounts of relapse were completely erroneous when compared with weights derived from momentary data. Thus, Shiffman’s findings, like those of Wilson et al. (1982), highlight the role of shared theories of situational influence in retrospective reporting. To improve people’s mood or prevent unwanted behaviors, these findings suggest, research should investigate the influence of situational factors in vivo rather than seek retrospective accounts of situational influence. The latter source of data can be seriously compromised by the use of normative theories that may overlap rela-

tively little with objective weights derived from online reports (see also Kahneman, 1999).

As collaborators, Saul Shiffman and Arthur Stone have also used the experience-sampling methodology to understand another important health-related topic, namely how people cope with stress. Two recent investigations suggest that coping behaviors must be assessed *in vivo*, as retrospective and trait reports of coping are systematically inaccurate in a number of ways. In the first investigation, Stone et al. (1998) assessed stress and coping responses on the basis of experience-sampling procedures, and then obtained retrospective reports of coping covering this same time period. One basic finding was that some participants tended to underendorse the use of coping responses retrospectively, whereas other participants tended to overendorse the use of such coping responses. Specifically, the extent to which under- versus overendorsement in retrospective ratings was characteristic of an individual correlated at .30 across items.

More important from a theoretical standpoint, Stone et al. (1998) compared discrepancy rates involving cognitive coping responses (e.g., "I viewed the situation differently to make it more bearable") versus behavioral coping responses (e.g., "I doubled my efforts to make things work"). A comparison of online versus retrospective reports revealed that cognitive coping responses were systematically underreported in the retrospect, whereas behavioral coping responses were systematically overreported in the retrospect. In accounting for these findings, the authors argued that cognitive responses would be relatively fleeting in memory, whereas behavioral responses would be more memorable, thus shifting retrospective reports toward behavioral responses relative to cognitive ones. Although the retrospective ratings were relatively close in time to the online ratings, the two methods shared only 29% of the variance in coping rates across items, and similar results were reported by Ptacek, Smith, Espe, and Rafferty (1994). Overall, the results suggest that dramatically different accounts of stress and coping can be obtained when the reports are online versus retrospective.

In a second investigation on stress and coping, Schwartz et al. (1999) compared momentary coping reports with trait reports of coping (i.e., when dealing with problems in general). To address the question of whether there were stable individual differences in coping, momentary data were partitioned into between-subjects and within-subject (i.e., across time) sources of variance. These analyses revealed that between 15% and 30% of the variance in momentary coping was due to stable individual differences. However, the trait ratings of coping predicted only 10% of this valid variance. The authors concluded that trait accounts of coping, although highly reliable, do not capture individual differences as revealed by momentary assessments. In essence, people possess certain beliefs about their coping dispositions, but these beliefs are largely invalid when compared with their online reports of coping. It should be noted that Folkman, Lazarus, Gruen, and DeLongis (1986) obtained similar results in an earlier investigation, thus increasing our confidence in the conclusions of the Schwartz et al. study.

Whereas Schwartz et al.'s (1999) results are provocative in suggesting that coping dispositions, as measured by trait scales, are largely invalid, we do not think that trait measures of emotionality can be generally characterized in this way. People form generalized beliefs about their own emotions that are reliable and valid,

and surely these generalized beliefs derive in part from repeated experience with one's own emotions over time (e.g., Epstein, 1983). Nevertheless, the following section does present evidence for the view that personality is a source of beliefs about emotion that can bias prospective, hypothetical, and retrospective reports about experience. Viewed from the perspective of our model, personality would constitute one source of generalized beliefs about emotion, beliefs that would be differentially accessed when people report on noncurrent experiences.

Personality as Belief: Theoretical Considerations and Evidence for Dissociation

Thus far, our review of discrepancies involving online versus noncurrent reports has largely, but not exclusively, been concerned with normative beliefs (e.g., that vacations are pleasant). In this section, we review evidence that personality-related beliefs can sometimes bias reports about retrospective, hypothetical, and prospective experiences. The explanation for such discrepancies, it should be clear, is that personality, like other sources of belief about emotion, constitutes a source of knowledge that can be drawn upon in reporting on emotions that are not currently felt. To the extent that personality-related beliefs misrepresent particular moments of experience, we would expect discrepancies between online and noncurrent reports. Although it seems reasonable to assume that personality beliefs are in part based on observing one's own emotional reactions over time, it also seems reasonable to propose that the relationship is far from perfect.

How do people derive beliefs about themselves, and are such beliefs necessarily based on concrete daily experiences? Such questions have been addressed by autobiographical memory researchers. According to Conway (1990), self-representation is intimately tied to the formation of *personal semantic memories*. Examples of such semantic abstractions include "what I was like in college" and "what I tend to do on weekends."

This research offers one overarching conclusion about the relation between episodic and semantic memories that is particularly important in the present context: Semantic abstractions organize, and are used to reconstruct, memory for the specific details of personal events (Conway, 1996), particularly for events that are more remote in time (Semin & Smith, 1999). For example, whereas events are experienced in a particular temporal order (e.g., I walked into the cafe, sat at a table in the corner, etc.), event retrieval seems to be organized by thematic content rather than by temporal order (Anderson & Conway, 1993). In a particularly intriguing demonstration of organization by personal semantic themes, N. R. Brown, Shevell, and Rips (1986) found that the recall of personal events was faster when participants were asked to recall autobiographical memories from their high school days than from the identical period defined as *President Carter's term*; by contrast, recall for political events was faster with the latter prompt.

There are a number of important consequences of people's tendency to organize events by personal semantic memories. First, events that do not fit one's preferred semantic themes are forgotten or otherwise not easily retrieved on the basis of semantic cues (Conway, 1996). There are many findings consistent with this claim. Depressed people experience difficulty remembering specific positive memories, a finding that is not dependent on the

frequency of these events in their lives (J. M. G. Williams, 1996). Women, in comparison with men, find it easier to recall emotional events (Davis, 1999), likely because they have more sophisticated emotion concepts that can serve as retrieval cues (Feldman Barrett et al., 2000). Individuals high in repression (defined as high social desirability and low trait anxiety) have a difficult time recalling events associated with certain negative emotions (Davis, 1987; Hansen & Hansen, 1988), likely because they do not have well-developed personal schemas centered around negative emotions (Bonnano & Singer, 1990). There is a general tendency for people to remember positive events better than negative events (Bahrick, Hall, & Berger, 1996; Skowronski, Betz, Thompson, & Shannon, 1991; Taylor, 1991), likely because the vast majority of people think of themselves in positive terms (Baumeister, Tice, & Hutton, 1989; J. D. Brown, 1986). Finally, autobiographical memories are organized on the basis of goal structures (J. A. Robinson, 1996). For example, individual differences in achievement motivation predict the tendency to recall events centered on achievement, whereas individual differences in intimacy motivation predict the tendency to recall events centered on intimacy (McAdams, Hoffman, Mansfield, & Day, 1996; Woike, Gershkovich, Piorkowski, & Polo, 1999).

A second important consequence of personal semantic memories is that they are shaped according to criteria such as coherence and consistency with other self-postulates (Epstein, 1973; McAdams, 1993). Personal semantic memories tell a story about the self, a story that uses conventional narrative structures (Barclay, 1996; Baumeister & Newman, 1994). For example, Clarke (1995) obtained autobiographical memories from people, scrambled them, and asked naive judges to reorder them appropriately. Naive judges ordered the events in a manner similar to the protagonists, suggesting that the protagonists had used narrative conventions in telling their life stories. Memories that possess coherence are seen as likely accurate, whereas memories that do not possess this quality are seen as inaccurate (Ross, Buehler, & Karr, 1998). Personal semantic memories play an important role in developing stable self-conceptions (Barclay, 1996; McAdams, 1993; Ross, 1989). Once such stable self-conceptions (or self-beliefs) are formed, they exert strong influences on the encoding and retrieval of self-relevant information (Swann & Schroeder, 1995). For example, people preferentially attend to, seek out, and remember information that supports, rather than contradicts, their coherent self-views (Baumeister & Cairns, 1992; Swann & Read, 1981; see Swann & Schroeder, 1995, for a review). Thus, personal semantic memories are an important component of self-theories more generally: They render the past consistent with current self-conceptions (Ross, 1989) and play an active role in how events are encoded and retrieved (Conway, 1996; J. A. Robinson, 1996).

The third, and most provocative, consequence of personal semantic memories is that they eventually become dissociated from the episodic details of daily life (Conway, 1996). For example, people with amnesia can describe particular periods of their lives despite the inability to recall any specific event that is relevant (Cermak & O'Connor, 1983; Stuss & Benson, 1984; Tulving, Schacter, McLachlan, & Moscovitch, 1988). Similarly, people with amnesia can make trait judgments about themselves that are reliable and valid despite the inability to recall a single life event that is relevant (Klein, Loftus, & Kihlstrom, 1996; Tulving, 1993a). This suggests that abstract knowledge about the self is not

dependent on the recall of specific episodic information, a conclusion reinforced by reaction time studies with normal individuals (e.g., Teasdale & Barnard, 1993). The most extensive body of such evidence comes from Stanley Klein and colleagues (e.g., Klein & Loftus, 1993; Klein, Loftus, & Sherman, 1993; Klein, Loftus, Trafton, & Fuhrman, 1992; Schell, Klein, & Babey, 1996). They have repeatedly found that (a) recalling a life event relevant to a specific trait does not allow one to make that trait judgment more quickly and (b) making a trait judgment does not allow one to recall a relevant life event more quickly. In sum, concrete episodic facts are neither necessary nor sufficient for making trait judgments.

Lest one be concerned about the power of this reaction time facilitation paradigm, Klein and colleagues have demonstrated that trait judgments within a particular context (e.g., me at school) do seem to depend on the retrieval of episodic information (e.g., Schell et al., 1996). Moreover, evidence from other literatures, such as person memory (Hastie & Park, 1986; Lichtenstein & Srull, 1987) and self-esteem (Marsh & Yeung, 1998), corroborates Klein et al.'s (1996) basic point about the independence of global personality judgments and memory for episodic facts. People form general beliefs about their own traits, this research (e.g., Klein et al., 1996) indicates, without having to recall any specific memories about their behaviors or experiences. Perhaps this is not too surprising: Klein et al. (1992) found that recalling specific trait-relevant memories took nearly 11 s, whereas participants could make trait judgments in 3 s (see also Knowles & Condon, 1999).

It is often assumed that people form general beliefs about themselves on the basis of numerous specific experiences (e.g., Epstein, 1983), and this is surely an important, perhaps primary, determinant. For example, self-other agreement in terms of behavioral (Funder, 1995) and emotional (Watson & Clark, 1991) traits is consistent with the premise that both actors and observers derive trait knowledge from a common basis, namely trait-relevant experience (Fuhrman & Funder, 1995). Nevertheless, self-other correlations are typically low to moderate (J. D. Brown & Dutton, 1995; Pervin, 1999), a fact that is consistent with the idea that there are other important influences on self-judgments. Some of these other influences relate to the incorporation of socialized beliefs, including gender stereotypes (Cross & Madson, 1997; Josephs et al., 1992; Thorne & Michaelieu, 1996). In addition, people possess powerful epistemic motives centered on developing and maintaining coherent self-views (Swann & Schroeder, 1995). Thus, self-beliefs are structured according to intrapsychic needs such as coherence and consistency. Because such beliefs are abstract and global, they are often dissociated from experiences within the moment. Furthermore, because such beliefs are functionally dissociated from momentary events (Klein et al., 1996), and because self-consistency is an important motive (Swann & Schroeder, 1995), self-beliefs tend to be updated only slowly over time (Marsh, 1993; M. D. Robinson, 2000). These considerations render it likely that personality-related beliefs are used when episodic memories are inaccessible and that such a reliance on identity-related beliefs can sometimes misrepresent online experiences.

Several studies have examined whether extraversion and neuroticism contribute differentially to online versus retrospective judgments of experience. For example, Feldman Barrett (1997) obtained reports of emotional experience three times a day for 90 days. Following these relatively online ratings, participants were

then asked to characterize their emotions over the entire 90-day period. Relative to their online ratings, participants high in neuroticism retrospectively overestimated the extent to which they experienced negative emotions. A similar, though somewhat less pronounced, retrospective bias was found for extraversion: Relative to their online ratings, extraverts tended to retrospectively overestimate their experience of positive emotions. Similar results have been observed in several other studies (e.g., Diener, Larsen, & Emmons, 1984; Schimmack, 1996). Furthermore, similar results have been recently reported for self-esteem (Conner, Wood, & Feldman Barrett, in press): Individuals high in self-esteem tend to overestimate their happiness in retrospective reports (relative to online ones), whereas individuals low in self-esteem tend to underestimate their happiness. Together, this research indicates that dimensions of personality (e.g., extraversion, neuroticism, and self-esteem) can be viewed as sources of beliefs that differentially contribute to emotional self-reports that discourage episodic memory for one's emotions.

Extraversion and neuroticism tap beliefs about emotion, but other content as well. For example, extraversion scales typically include a large sociability component (e.g., "I like parties"). It seems likely to us that even stronger personality-related biases in retrospection would occur in studies using trait scales of positive and negative affect. In this connection, Scollon et al. (2001) used the same positive affect items in online, retrospective, and trait judgments of emotion. In all of the five cultures that they examined, trait affect predicted retrospective ratings of positive affect even after online ratings had been controlled. In at least two of the groups (Asian and Hispanic Americans), trait and online affect scores predicted about the same amount of variance in retrospective ratings.

Other studies have looked at how neuroticism biases retrospective reports of somatic experience. Although retrospective symptom reports are correlated at approximately .40 with neuroticism (Pennebaker, 2000), there are reasons for thinking that this correlation reflects personality-related beliefs rather than momentary differences in somatic experience. First, people high in neuroticism do not seem to experience more objective health problems, as they do not visit the hospital more often (Watson & Pennebaker, 1989). Second, the correlation differs by the time frame of the reports, such that larger coefficients are observed when wider time frames (e.g., last few weeks) are used relative to narrower time frames (e.g., today; Watson & Pennebaker, 1989). The latter point suggests that neuroticism might retrospectively bias reports of physiological symptoms relative to online reports, a hypothesis confirmed in a number of online versus retrospective studies (e.g., K. W. Brown & Moskowitz, 1997; Larsen, 1992).

Larsen (1992) obtained three daily reports of physiological symptoms for 8 weeks, and then asked for retrospective reports covering this entire time period. Neuroticism biased retrospective, relative to online, reports such that participants high in neuroticism overestimated their symptoms in the retrospect. Although a retrospective bias was found, it was also true that participants high in neuroticism reported more symptoms in their online reports. It is important to note, however, that the online reports in this study were not strictly momentary; participants were asked to rate their symptoms over the period of several hours (e.g., from noon to dinnertime). Reasoning that even these reports introduce biases due to retrospection, K. W. Brown and Moskowitz (1997) per-

formed a subsequent study in which symptom reports were momentary in nature (i.e., right now). In this study, there was no relationship between neuroticism and online symptom reports, but there was a retrospective bias due to neuroticism, replicating Larsen. Taken together, these results are quite consistent with our accessibility model in suggesting that (a) personality can be viewed as a source of beliefs about experience and (b) such beliefs contribute differentially to retrospective or time-inclusive reports relative to those obtained online.

Repression is another trait that can be viewed as a source of beliefs about emotion. Participants high in repression believe that they experience fewer negative emotions than participants low in repression, and this influences their responses to hypothetical prompts as well as their ability to recall experiences of negative emotion. Looking at responses to hypothetical scenarios, Schimmack and Hartmann (1997) found that participants high in repression estimated that they would experience negative emotions significantly less often than participants low in repression. Looking at the retrieval of emotional memories, Davis (1987) found that participants high in repression were less able to remember instances on which they had experienced particular negative emotions like fear and guilt (see Hansen & Hansen, 1988, for related evidence). Davis (1987) concluded that repression is largely a memory-based phenomenon: Participants high in repression believe that they experience negative emotions less often, and this influences their ability to use self-generated cues to retrieve negative emotional memories (see also Bonnano & Singer, 1990). Consistent with this account, Baumeister and Cairns (1992) gave self-relevant feedback to participants, and found that participants high in repression, relative to participants low in repression, were better able to remember positive feedback and less able to remember negative feedback. Also consistent with Davis's (1987) assumption that repression relates more to emotional memory than to online experience, the evidence for repressive differences in online emotional experience is mixed at best. For example, in a study of daily emotional experience, Schimmack and Hartmann (1997) found no online differences in the frequency of negative emotions over a 2-week period. Taken together, it appears that (a) repression measures, among other things, beliefs about the experience of negative emotions; (b) such beliefs contribute to responses to hypothetical prompts, as well as to retrospective reports about emotion; but (c) online differences in emotional experience are inconsistent and often nonsignificant.

Repression is defined as low trait anxiety combined with high social desirability (Weinberger, Schwartz, & Davidson, 1979), and it is often difficult to separate the effects of repression from those of anxiety per se (e.g., Cutler, Larsen, & Bunce, 1996). However, when considering trait anxiety alone, there is evidence for both retrospective and prospective distortions. In Cutler et al.'s (1996) study, participants reported on their daily experiences and then made retrospective reports of their emotions during this period. Participants high in trait anxiety exaggerated their retrospective experience of negative affect relative to their daily ratings. Looking at a more specific experience, Arntz, van Eck, and Heijmans (1990) examined participants low versus high in dental anxiety. Prior to a specific dental visit, participants high in anxiety expected to experience more dental pain during treatment (prospective report). Following treatment, they also remembered that their pain had been more intense (retrospective report). During treatment,

however, they actually experienced nonsignificantly less pain than those low in anxiety (online report). Thus, prospectively and retrospectively, individual differences in anxiety seem to serve as a source of beliefs for predicting dental pain, leading to discrepancies between prospective and retrospective reports on the one hand and online reports on the other (see Kent, 1985, for similar evidence).

In another line of research, clinicians have asked people with claustrophobia to predict how much fear they would experience in an enclosed space and then rate their fear when actually in that enclosed space (Taylor & Rachman, 1994; Telch, Valentiner, & Bolte, 1994). A conclusion of this research was that potential safety cues—such as proximity to an exit—are not appreciated prospectively. However, such safety cues do have an influence on online ratings of fear. People with claustrophobia, therefore, are particularly likely to overestimate their fear when safety cues are present (Taylor & Rachman, 1994). As argued by Barlow (1991), phobias and panic disorders are not centrally related to the experience of fear within specific situations. For example, a large minority of the public has experienced symptoms that could be labeled as panic attacks. What makes phobias and panic disorders particularly pernicious is that people come to anticipate intense fear and avoid situations that could cue such symptoms to the point that their lives become substantially influenced. Thus, as Barlow (1991) argued, phobias and panic disorders relate more to the anticipation of fear in particular situations than to the actual experience of fear in these situations. Once such beliefs about situational influence are formed, they are very difficult to change, to a large extent because people so diligently avoid the feared situation and are therefore unable to learn that the situation is less terrible than expected (Barlow, 1991).

To summarize the main points of this section, we started by reviewing research showing that personality judgments are typically not made by recalling specific events, experiences, or behaviors. Although personality-related beliefs are partly derived from personal experience, they gain an independence from those experiences, thereby influencing how events are reconstructed. Person-related beliefs are developed and maintained for the sake of clarity and consistency in self-representation. They are conservative, changing only relatively slowly in response to experience, and they are relatively decontextualized. Therefore, we predicted that personality-related beliefs could sometimes bias retrospective, hypothetical, and prospective reports of experience relative to online reports. We were able to present some relevant evidence for this contention, but further research would be particularly useful.

Episodic Versus Semantic Memory: A Test of the Model

A basic assumption of our model is that people switch from an episodic memory strategy to a semantic memory strategy when the type of self-report discourages episodic retrieval. Consider what our model might predict about concerning time-inclusive reports of emotion. When people report on feelings within the moment, they should be relatively quick to do so, as only experiential information need be considered. When reporting on their feelings over a certain period of time such as several hours, days, or weeks, by contrast, it should become increasingly difficult to rely on episodic memory. Problems in retrospection and integration, that is, become more formidable with wider time frames relative to

narrower ones. Our claim is that, at a certain point people do not attempt to recall episodic memories, but instead access semantic emotion knowledge. We sought to find relatively direct evidence for this switch in memory type.

The basic procedures of our (M. D. Robinson & Clore, 2002) studies involved making emotion judgments on computer. Participants judged themselves on eight or nine emotions (e.g., anger, happiness), depending on the sample involved. These emotions were crossed with time frames that varied in their relative width, including “right now,” “last few hours,” “last few days,” “last few weeks,” “last few months,” “last few years,” and “in general.” Emotion \times Time Frame combinations were randomly presented, and appropriate procedures (Fazio, 1990) were used for measuring, transforming, and analyzing judgment latencies.

In Study 1 (M. D. Robinson & Clore, 2002), we made a rather straightforward prediction on the basis of a prior article by N. R. Brown (1995). If people attempt to recall relevant episodic details before making their emotion judgments, it should take them longer to make judgments for wider time frames relative to narrower ones. This is simply because wider time frames are associated with more and more episodic details. If people abandon episodic retrieval, we reasoned (see N. R. Brown, 1995, for confirmation), there should be no linear rise in judgment latencies with time frame width. If so, it should be relatively obvious to discern the switch from episodic memory to semantic memory simply by analyzing how mean latencies differ by time frame.

Across three samples, we found a linear rise in judgment latencies for time frames narrower than “last few weeks.” By contrast, we found no linear rise in judgment latencies for time frames wider than “last few weeks.” These latencies, along with rating data from Study 1, led us to conclude that an episodic retrieval strategy is limited to time frames that are more narrow than “last few weeks.”

In Study 2 (M. D. Robinson & Clore, 2002), we sought independent confirmation of the switch from episodic to semantic memory with wider time frames. Our predictions were based on the qualitative differences between episodic and semantic memory (e.g., Tulving, 1984; see Table 1). We reasoned that if people retrieve episodic knowledge in making a judgment, then there should be no advantage to making two such judgments in a row. For example, a different set of details should be involved in judging one’s anger over the last several hours on the one hand and one’s sadness over the last several days on the other. By contrast, we reasoned that if people retrieve semantic knowledge in making a judgment, then there should be an advantage to making two such judgments in a row. Semantic, but not episodic, memory is tightly organized (Tulving, 1984). In the present context, one’s beliefs about one’s emotions are relatively stable and well integrated.

We tested these ideas in Study 2 by analyzing judgment latencies for narrow versus wide time frames as a function of the type of trial that preceded it (narrow vs. wide). We predicted that latencies for narrow time frames would be unaffected by the width of the prior trial. By contrast, we predicted that latencies for wide time frames would be lower (i.e., faster) if the preceding trial also involved a wide (vs. narrow) time frame. Results were in accord with these predictions. Results thus suggest an important qualitative distinction between episodic and semantic emotion knowledge. Episodic emotion knowledge is variable and loosely organized, whereas semantic emotion knowledge is relatively fixed and tightly organized.

Study 3 (M. D. Robinson & Clore, 2002) constituted a third test of our model. We reasoned that, if a judgment is made on the basis of semantic knowledge, then priming a source of beliefs prior to the study should produce belief-consistent ratings. By contrast, if a judgment is made on the basis of episodic rather than semantic knowledge, then priming a source of beliefs should not produce belief-consistent ratings. To prime a source of beliefs, we randomly assigned individuals to one of two conditions. In the experimental condition, participants were asked to contrast themselves with their opposite sex peers, an exercise that should have and did elicit gender stereotypes of emotion. Following this priming manipulation, which was described as a separate study, participants made their emotion judgments on computer.

For time frames wider than “last few weeks,” the priming manipulation resulted in belief-consistent ratings. That is, men in the gender priming condition, relative to men in the control condition, reported less intense emotions. Similarly, women in the gender priming condition, relative to men in the control condition, reported more intense emotions. Such a pattern of ratings is quite consistent with the stereotype that women experience more intense emotions than men. By contrast, the gender priming manipulation did not produce belief-consistent ratings for time frames narrower than “last few weeks.” In Study 3, therefore, we concluded that accessible beliefs were used in judging one’s emotions over wide, but not narrow, time frames.

The convergence of all three studies (M. D. Robinson & Clore, 2002) was striking. Together, the findings strongly point to different memory processes when reporting on emotions over narrow (i.e., episodic) versus wide (i.e., semantic) time frames. From the subjective point of view, it may not be so obvious that such a dramatic difference in judgment strategy is occurring. However, it appears that, consistent with our model, people possess functionally dissociable episodic and semantic emotional selves. We suggest that further research along these lines is likely to be a productive way to examine how people make emotional self-reports.

General Discussion

We hope that we have convinced some readers of the utility of an accessibility approach to emotional self-report. When people report on their emotions, they access multiple sources of knowledge. Furthermore, a thorough understanding of what they say about their feelings requires a thorough understanding of how these sources of information contribute to any given type of report. When people report on their current feelings, they tend to access experiential information, and their reports are largely driven by construal of current situational details. When people report on feelings that they are not currently experiencing, by contrast, they lack experiential cues. This renders it likely that they access semantic emotion knowledge, particularly to the extent that episodic retrieval is too difficult (e.g., retrospective reports) or pointless (e.g., prospective reports). Because different sources of information contribute to current versus noncurrent reports about emotion, systematic discrepancies between the two types of reports should be expected. The research reviewed in this article supports this expectation.

In reviewing discrepancies between online versus noncurrent reports, our contribution was to show that a diversity of findings can be meaningfully integrated into a common model. In this

connection, distinct reporting formats—retrospective, hypothetical, prospective, and time inclusive—may tap common processes. In each of these cases, a person is likely to resort to semantic memory (i.e., generalized beliefs) in making their ratings. Although our analysis of individual findings was often inferential, the total body of findings, we think, is fairly convincing. Nevertheless, we have also identified a number of questions for future research, including (a) How are beliefs about emotion developed and updated?; (b) How do distinct prompts, as well as distinct reporting formats, cue different sources of belief?; (c) How do event memories contribute to retrospective and time-inclusive reports?; and (d) Are there meaningful individual differences in the accessibility of different sources of belief (e.g., gender stereotypes) that contribute to discrepancies between online versus noncurrent reports of emotion?

Finally, we suggested that personality can be viewed as a source of beliefs and that personality-related beliefs can systematically bias noncurrent reports relative to those obtained online. We reviewed evidence that is consistent this view. Nevertheless, we need more basic evidence for this personality-as-belief perspective. Furthermore, it would be disingenuous to claim that personality-related beliefs belong in the same category as some other beliefs that may have little basis in reality (e.g., that menstruation causes negative affect). We offer the personality-as-belief perspective with this caveat in mind.

In the next section, it will be helpful to revisit our model, particularly in light of some alternative approaches.

Alternative Approaches

The purpose of this section is to compare our model with others. We consider both similarities and differences between the current model and others, with the hope that such a discussion reveals both how our work builds on previous work and how it departs from previous work.

Kahneman (1999). Building on earlier work, Kahneman (1999) argued that people have veridical access to their hedonic states only in the moment of their occurrence. Retrospective reports of emotion are biased such that the most intense and recent moments of an experience have a disproportionate influence on retrospective estimations. Because such moments should be especially memorable, Kahneman’s explanation of retrospective biases makes heavy use of episodic memory. We agree that, in many cases of retrospection, people do indeed attempt to recall episodic details. However, we also suggest that memory for one’s emotional experiences can never be recalled. Rather, we suggest that, although experience per se may not be remembered accurately, details of an emotional event may be (Christianson & Safer, 1996). These accessible episodic memories (e.g., “I went to a party”) might be used to make inferences about how one must have been feeling at the time (e.g., “I must have been happy”). Such a reconstructive strategy would combine memory (Kahneman’s model) and belief (our model).

Kahneman’s (1999) model may have more relevance to situations in which the emotional event is discrete, memorable, and recent. Under these conditions, episodic memories would be relatively accessible. With longer delays or less discrete events, by contrast, episodic memories may play a relatively smaller role. It is notable that Kahneman’s framework would predict that retro-

spective reports should always be more intense than online reports because the peak (on which retrospective reports are largely based) would, by definition, be more intense than the average of momentary experiences. Although some experience-sampling studies have found this result (Thomas & Diener, 1990), others have suggested that memory biases do not contribute to retrospective exaggeration (Winkielman, Knäuper, & Schwarz, 1998).

Finally, it is notable that Kahneman's (1999) framework cannot account for the type of belief-based reconstruction (e.g., recalling past romantic feelings as consistent with current romantic feelings) reported in this review. This perhaps is the most important difference between Kahneman's model of retrospective biases and ours.

Ross (1989). In an influential article, Michael Ross (1989) highlighted the role of beliefs in reconstructing past emotions and attitudes. He argued that people know how they currently feel and think, but can only make inferences about how they felt or thought in the past. To reconstruct past feelings, people assess current feelings, in combination with theories of stability or change. For example, people assume that their romantic feelings are stable over time. Therefore, they reconstruct past feelings so that they are consistent with current feelings. If one's relationship has improved, past feelings are viewed as more positive than they actually were; by contrast, if one's relationship has deteriorated, past feelings are viewed as more negative than they actually were (McFarland & Ross, 1987).

Ross's (1989) emphasis on theory is very much consistent with our emphasis on belief. However, not all emotion-related beliefs are related to stability or change. Some beliefs have more direct relevance. For example, the belief that vacations are pleasant (Mitchell et al., 1997) may bias retrospective estimates directly ("I must have been happy") rather than indirectly. Similar processes would presumably be involved when men and women remember their emotions as more gender stereotypic than they actually were (M. D. Robinson et al., 1998) and when people high in neuroticism remember their emotions as more negative than they actually were (Feldman Barrett, 1997). Thus, by our account, beliefs about situational influences, social norms, and personality can exert direct influences on retrospective reports. Beliefs about stability or change (Levine, 1997; Ross, 1989) are only one source of beliefs that can be used in retrospection, albeit an important source.

Finally, Ross's (1989) model pertains to retrospective reports in particular and is thus relatively silent concerning some fundamental similarities between different types of self-report (e.g., retrospective, trait, and prospective) that can share semantic, but not episodic, memory.

Wilson et al. (2000) and Gilbert et al. (1998). Wilson et al. (2000) and Gilbert et al. (1998) each presented evidence for biases in prospection. Wilson et al. (2000) presented the principle of *focalism*, whereby people overestimate their reactions to particular events. The principle of focalism, we think, has broad relevance for understanding a diversity of self-report discrepancies. By our account, people answer questions such as "How will you feel if your football team wins (loses)?" by considering the situation and accessing a situational theory of emotion (e.g., losses are bad). Because in vivo reactions to such events are embedded within the details of daily life, and because such details cannot be accessed when they are not currently experienced, people will generally overestimate their reactions to specific events, both in the prospect and in the retrospect. A nice example of this was provided in the

vacation study (Mitchell et al., 1997), which found that reports of vacations were more rosy in both prospection and retrospection than online.

The principle of focalism (Wilson et al., 2000) emphasizes the role of normative beliefs about situational influence. When people are asked to estimate their feelings in a situation that has clear implications for emotion (e.g., wins are good, losses are bad, birthdays are good, Mondays are bad), such normative beliefs lead to polarized estimations. As shown by Wilson (Wilson et al., 1982; Wilson & Stone, 1985), such normative beliefs tend to be accurate in their direction, but exaggerated in their intensity. By our account, however, individual differences in belief are also relevant, a principle that focalism itself does not cover. For example, Arntz et al. (1990; as well as Kent, 1985) found that individual differences in dental anxiety predicted both prospective and retrospective estimates of felt pain: High, but not low, anxious participants overestimated their degree of felt pain both prospectively and retrospectively, in comparison with their online ratings of pain. It is also important to note that focalism mainly applies to cases in which people are prompted to report on their likely reactions to specific events. Thus, focalism is an important principle (Loewenstein & Schkade, 1999), but does not apply to many of the discrepancies that we reviewed.

Gilbert et al. (1998) offered the principle of *immune neglect*, whereby people underestimate their ability to successfully cope with negative events. People generally assume that negative events such as the dissolution of a romantic relationship will be more devastating than is the case in actuality. Add to this bias the fact that people are generally risk averse (Kahneman & Tversky, 1979), and an interesting picture emerges. People may go to great lengths to avoid situations that, in reality, would not be as bad as expected. For example, many people avoid doctors because of the possibility of being diagnosed with a possibly fatal condition (e.g., breast cancer; Kash, Holland, Halper, & Miller, 1992), and yet such diagnoses end up causing less distress than expected (Loewenstein & Schkade, 1999).

However, we think there are limitations to the immune neglect principle. In many circumstances, people may overestimate their ability to cope with negative events. For example, Christensen-Szalanski (1984) asked mothers to predict whether they would request anesthesia during labor. Many of these women said they would not request pain medication, but reversed this decision when the pains of childbirth actually began. In this case, mothers may have underestimated the pain of childbirth, overestimated their own willpower, or some combination of the two (Loewenstein, 1996). In another study, Weinstein (1982) found that people underestimated the long-term distress caused by living next to a noisy freeway. Thus, immune neglect may be one principle contributing to prospective biases, but other beliefs (e.g., about one's ability to cope with multiple responsibilities; Liberman & Trope, 1998) also contribute to prospective biases. Detailed work is necessary to reconcile these various prospective biases.

Finally, the biases discovered by Wilson et al. (2000) and Gilbert et al. (1998) pertain exclusively to prospective reports of emotion. In this sense, both frameworks do not address what we view as fundamental similarities between multiple types of self-report (e.g., prospective, retrospective, and hypothetical). In each case, episodic memories are relatively inaccessible, rendering it

likely that the person will access semantic emotion knowledge instead.

Loewenstein (1996). Loewenstein (1996), like us, makes a distinction between beliefs and feelings. Coming from a decision-making perspective, Loewenstein's major interest is in the motivational power of feelings when they are experienced versus their underappreciation when not experienced. According to his account, rational, normative beliefs are often undermined in the "heat of the moment" (Metcalf & Mischel, 1999). For example, a young adult might insist that he or she practices safe sex, yet violate this normative belief when an opportunity presents itself. Or an overweight person may resolutely decide to stick to a diet, only to binge when hunger rises or self-esteem drops. People's failure to regulate their behavior, these examples suggest, is often due to their failure to appreciate the motivational power of particular feelings when those feelings are not currently experienced. Like Loewenstein (1996), we assume that feeling estimations are likely to be quite different as a function of whether those feelings are currently experienced. Momentary appraisals of situations are "hot" and dynamic, whereas general beliefs about emotion are "cold" and enduring (Epstein, 1994).

Aside from these points of agreement, there are several important differences between Loewenstein's (1996) model and ours. Our interest is primarily in emotional experience itself, whereas Loewenstein's is primarily in its behavioral consequences. More important, our analysis suggests that online reports often diverge from those that are temporally remote, but does not specify a particular direction of divergence. Loewenstein's account, on the other hand, would seem to imply a systematic underestimation of online experience, or at least an underappreciation of the consequences of this experience.

Our review, by contrast, found many instances in which people overestimated their online reactions in temporally remote reports. Retrospectively, women overestimate the intensity of the negative affect they felt when menstruating (McFarland et al., 1989). Prospectively, young adults overestimate their happiness in the future (M. D. Robinson & Ryff, 1999). Prospectively and retrospectively, people tend to overestimate the intensity of their pain (Rachman & Eryl, 1989) and perhaps their emotions more generally (Thomas & Diener, 1990). We account for these effects by proposing that although people may not accurately simulate emotions that are not felt in the moment (Christianson & Safer, 1996; Loewenstein, 1996), they can access beliefs about emotion. Whether underestimation or overestimation is more likely depends on the particular beliefs that are accessed.

Self-Report Issues

Before concluding, we should comment on a number of issues that typically arise when psychologists examine the validity of self-reports. In this connection, we begin by reviewing Nisbett and Wilson's (1977) influential review article.

Nisbett and Wilson's (1977) critique has been widely regarded as an attack on self-report. We note, however, that their main interest was in people's insight into the factors influencing their behavior. For example, Maier (1931) told participants that their task was to tie two hanging cords together. The solution was to tie an object to one of the ropes, and swing it over to the other one, at which point both could be grasped at once. Maier initiated a useful

cue by brushing against one of the ropes, setting it in motion. Although most people solved the problem shortly after this clue, few mentioned it as a cause of the solution. By contrast, Maier gave a normatively useless clue by tying an object to one of the ropes and twirling it. Although this clue was in fact useless, most people cited it as an important cause.

Thus, Maier (1931) argued that people do not have privileged access to the causes of their problem-solving behavior, and Nisbett and Wilson (1977) concluded that such a lack of access can be found in many domains. Nevertheless, Nisbett and Wilson did acknowledge that people know a great deal about their "own emotions, evaluations, and plans" (p. 255). Our analysis, however, indicates that even these reports vary in accuracy. We assume that people possess direct access to their conscious feelings, but only during an emotional moment. When asked to report on feelings not currently experienced, by contrast, we assume that people access their beliefs about their affect rather than their affect itself. Indeed, there appears to be little reason to assume that affect is directly stored in memory (Christianson & Safer, 1996; Wyer et al., 1999).

Our model makes the assumption that all reports of emotion are meaningful. Investigators not only want to know what people experience in specific situations, but also what they believe they experience. In this connection, if emotional reactions are discrete and transitory (Ekman, 1984), beliefs about emotion, rather than emotions themselves, may be more consequential. Whether the phobic person experiences affect as intensely as expected (Barlow, 1988) or the trait anxious individual experiences as much pain as predicted (Arntz et al., 1990) is an academic question if beliefs about fear and pain lead that person to avoid the situation in the first place. Similarly, depressive pessimism may lead a person to avoid certain challenging situations that would, if experienced, be rewarding (Pyszczynski, Holt, & Greenberg, 1987). By contrast, trait optimism, even self-deceptive optimism, can allow a person to cope with all sorts of stressors and negative affect in the short term (Bandura, 1989; Scheier & Carver, 1993).

The roles of belief and feeling in self-report were nicely highlighted in research by Mitchell et al. (1997), who had people report on their affect prior to, during, and after their vacations. Both prospectively and retrospectively, participants reported more enjoyment than they actually experienced (as indicated by daily ratings). Perhaps the prospective ratings are not too surprising: People tend to be very optimistic about their future affect (Staats & Skowronski, 1992), and this is particularly true when they expect change in their daily lives (M. D. Robinson & Ryff, 1999). What is perhaps more surprising is that retrospective ratings tended to return to levels comparable to prospective ones (Mitchell et al., 1997).

On the one hand, we might conclude that prospective and retrospective reports are inaccurate estimations of online experience, as we have claimed in this article. On the other hand, a vacation is more than one's daily affect. The prospect of a vacation can be exciting, and, after the vacation is over, one retains individual snapshots (Fredrickson & Kahneman, 1993) that are equally valuable. The mundane and negative realities of daily travel experience (e.g., taking buses, getting lost, eating too much, and sleeping poorly) fade into the background as the novel memories (e.g., visiting an ancient castle, going to the beach) remain (Thompson, 1997).

Pursuing this issue further, we have proposed that beliefs about emotion follow from relatively enduring cognitive structures. Among these are one's self-concept, personality, and cultural beliefs. Because emotion concepts are arguably a major part of the content of these structures, temporally remote reports are inherently interesting. Indeed, if one were interested in these enduring structures, ratings of online experience would be a poor choice. Because they vary so much from situation to situation, online reports, at least disaggregated ones, may reveal little about an individual (Diener & Larsen, 1984).

On the basis of discrepancies between online and retrospective emotion reports, Kahneman (1999) urged acceptance of the former and rejection of the latter as indicators of objective happiness. However, his recommendation rests on the assumption that trait and retrospective reports of happiness should closely approximate average momentary mood. This may or may not be the case. More important are the functional consequences to the distinction between beliefs and feelings, and these consequences have generally been underappreciated. Whereas online mood is highly variable, reports of trait happiness are not. In a recent study, for example, M. D. Robinson (2000) found higher test-retest stability for trait reports of happiness in comparison with mood states. Even more interesting, weekly fluctuations in life events strongly affected mood, but less strongly affected trait happiness. Thus, trait happiness is conservative, exhibiting only small fluctuations from situation to situation (Eid & Diener, 1998).

Beliefs about one's emotion, more generally, are conservative, and this confers benefits. Because of dissociations between experiential information and semantic emotion knowledge, people can maintain a stable sense of their lives despite marked fluctuations from moment to moment. This allows people to maintain their commitments (e.g., marriage) and pursue their long-term goals (e.g., work) even when the events of the day are less than satisfactory (Bandura, 1989). Similarly, M. D. Robinson and Ryff (1999) have argued that unrealistic positive expectations for future happiness are an important part of one's motivations, enabling people to be optimistic in the face of important life transitions (Markus & Nurius, 1986).

Campbell (1990) has recently argued that differences in self-esteem represent more than differences in the valence of self-evaluation. Specifically, people that are low versus high in self-esteem also differ in the strength of their beliefs about themselves (see also Baumeister et al., 1989). People high in self-esteem possess strong beliefs, and these beliefs serve to minimize the emotional impact of negative events. Thus, whereas nearly everyone reacts strongly to positive events, people low in self-esteem are more strongly affected by negative events (J. D. Brown & Mankowski, 1993; Campbell, Chew, & Scratchley, 1991). People high in self-esteem are also less prone to evaluation apprehension (Brockner & Hulton, 1978), less persuaded by others (Berkowitz & Lundy, 1957), and more willing to stick by their public commitments (Baumeister & Covington, 1985). For a variety of reasons, people prefer consistency in their self-views (Swann & Schroeder, 1995), but such consistency can only be achieved by dissociating belief structures from momentary perceptions.

In sum, our approach does not favor online reports over other types of reports. If one is interested in emotional experience, online reports should be obtained. If one is interested in enduring beliefs, online reports should be avoided. Either type of report

produces valuable data, but the factors at work depend on the type of report obtained.

Conclusion

Our aim in this article was to delve into the processes involved in emotional self-report. By reviewing a number of literatures and findings, we attempted to show that there are underlying principles that have general relevance. We suggested that qualitatively different factors contribute to reports about feelings in the moment versus not. Such differential contributions—of feeling and belief, respectively—explain why discrepancies between online and non-current reports are obtained. A consideration of the sources of belief that people draw upon is crucial for understanding the direction of such discrepancies. Future work would benefit from a closer examination of belief accessibility and belief activation processes. If such processes do underlie the diversity of phenomena reported here, they should be examined as directly as possible. Accordingly, we have outlined several types of studies that might be especially productive in this regard and have also highlighted existing studies that merit special attention for what they reveal about emotional self-report.

References

- Alba, J. W., & Hasher, L. (1983). Is memory schematic? *Psychological Bulletin*, *93*, 203–231.
- Anderson, S. J., & Conway, M. A. (1993). Investigating the structure of specific autobiographical memories. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *19*, 1–19.
- Arntz, A., & van den Hout, M. A. (1988). Generalizability of the match/mismatch model of fear. *Behaviour Research and Therapy*, *26*, 207–233.
- Arntz, A., van Eck, M., & Heijmans, M. (1990). Predictions of dental pain: The fear of any expected evil is worse than the evil itself. *Behaviour Research and Therapy*, *28*, 29–42.
- AuBuchon, P. G., & Calhoun, K. S. (1985). Menstrual cycle symptomology: The role of social expectancy and experimental demand characteristics. *Psychosomatic Medicine*, *47*, 35–45.
- Bahrack, H. P., Hall, L. K., & Berger, S. A. (1996). Accuracy and distortion in memory for high school grades. *Psychological Science*, *7*, 265–271.
- Balswick, J., & Avertt, C. P. (1977). Differences in expressiveness: Gender, interpersonal orientation, and perceived parental expressiveness as contributing factors. *Journal of Marriage and the Family*, *39*, 121–127.
- Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist*, *44*, 1175–1184.
- Barclay, C. R. (1996). Autobiographical remembering: Narrative constraints on objectified selves. In D. Rubin (Ed.), *Remembering our past: Studies in autobiographical memory* (pp. 94–125). New York: Cambridge University Press.
- Barlow, D. H. (1988). *Anxiety and its disorders: The nature and treatment of anxiety disorders*. New York: Guilford Press.
- Barlow, D. H. (1991). Disorders of emotion. *Psychological Inquiry*, *2*, 58–71.
- Bartlett, F. C. (1932). *Remembering: A study in experimental and social psychology*. Cambridge, England: Cambridge University Press.
- Baumeister, R. F., & Cairns, K. J. (1992). Repression and self-presentation: When audiences interfere with self-deceptive strategies. *Journal of Personality and Social Psychology*, *62*, 851–862.
- Baumeister, R. F., & Covington, M. V. (1985). Self-esteem, persuasion, and retrospective distortion of initial attitudes. *Electronic Social Psychology*, *1*, 1–22.
- Baumeister, R. F., & Newman, L. S. (1994). How stories make shape of

- personal experiences: Motives that shape autobiographical narratives. *Personality and Social Psychology Bulletin*, 20, 676–690.
- Baumeister, R. F., Tice, D. M., & Hutton, D. G. (1989). Self-presentational motivations and personality differences in self-esteem. *Journal of Personality*, 57, 547–579.
- Begg, I. M., & Nicholson, S. (1994). Semantic and episodic relations are experimentally dissociable and stochastically independent. *Canadian Journal of Experimental Psychology*, 48, 399–417.
- Berkowitz, L., & Lundy, R. (1957). Personality characteristics related to susceptibility to influence by peers or authority figures. *Journal of Personality*, 25, 306–316.
- Birnbaum, D. W., Nosanchuk, T. A., & Croll, W. L. (1980). Children's stereotypes about sex differences in emotionality. *Sex Roles*, 6, 435–443.
- Blair, E., & Burton, S. (1987). Cognitive processes used by survey respondents to answer behavioral frequency questions. *Journal of Consumer Research*, 14, 280–288.
- Bonanno, G. A., & Singer, J. L. (1990). Repressive personality style: Theoretical and methodological implications for health and psychology. In J. L. Singer (Ed.), *Repression and dissociation* (pp. 435–470). Chicago: University of Chicago Press.
- Boyle, G. L., & Grant, A. F. (1992). Prospective versus retrospective assessment of menstrual cycle symptoms and moods: Role of attitudes and beliefs. *Journal of Psychopathology and Behavioral Assessment*, 14, 307–321.
- Brockner, J., & Hulton, A. (1978). How to reverse the vicious cycle of low self-esteem: The importance of attentional focus. *Journal of Experimental Social Psychology*, 15, 564–578.
- Brody, L. R., & Hall, J. A. (1993). Gender and emotion. In M. Lewis & J. Haviland (Eds.), *Handbook of emotions* (pp. 447–461). New York: Guilford Press.
- Brooks-Gunn, J., & Ruble, D. N. (1980). The Menstrual Attitude Questionnaire. *Psychosomatic Medicine*, 42, 503–512.
- Brown, J. D. (1986). Evaluations of self and others: Self-enhancement biases in social judgments. *Social Cognition*, 4, 353–376.
- Brown, J. D., & Dutton, K. A. (1995). Truth and consequences: The costs and benefits of accurate self-knowledge. *Personality and Social Psychology Bulletin*, 21, 1288–1296.
- Brown, J. D., & Mankowski, T. A. (1993). Self-esteem, mood, and self-evaluation: Changes in mood and the way you see you. *Journal of Personality and Social Psychology*, 64, 421–430.
- Brown, K. W., & Moskowitz, D. S. (1997). Does unhappiness make you sick? The role of affect and neuroticism in the experience of common physical symptoms. *Journal of Personality and Social Psychology*, 72, 907–917.
- Brown, N. R. (1995). Estimation strategies and the judgment of event frequency. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 21, 1539–1553.
- Brown, N. R., Shevell, S. K., & Rips, L. J. (1986). Public memories and their personal context. In D. C. Rubin (Ed.), *Autobiographical memory* (pp. 137–158). Cambridge, England: Cambridge University Press.
- Buhler, R., Griffin, D., & Ross, M. (1994). Exploring the “planning fallacy”: Why people underestimate their task completion times. *Journal of Personality and Social Psychology*, 67, 366–381.
- Campbell, J. D. (1990). Self-esteem and clarity of the self-concept. *Journal of Personality and Social Psychology*, 59, 538–549.
- Campbell, J. D., Chew, B., & Scratchley, L. S. (1991). Cognitive and emotional reactions to daily events: The effects of self-esteem and self-complexity. *Journal of Personality*, 59, 473–505.
- Cermak, L. S., & O'Connor, M. (1983). The anterograde and retrograde retrieval ability of a patient with amnesia due to encephalitis. *Neuropsychologia*, 21, 213–234.
- Christensen-Szalanski, J. J. (1984). Discount functions and the measurement of patient's values: Women's decisions during childbirth. *Medical Decision Making*, 4, 47–58.
- Christianson, S.-A., & Safer, M. A. (1996). Emotional events and emotions in autobiographical memory. In D. Rubin (Ed.), *Remembering our past: Studies in autobiographical memory* (pp. 218–243). New York: Cambridge University Press.
- Cioffi, D. (1991). Beyond attentional strategies: A cognitive-perceptual model of somatic interpretation. *Psychological Bulletin*, 109, 25–41.
- Clarke, D. D. (1995). Life scripts: Implicit representations of life-course patterns. *Journal of Social Behavior and Personality*, 10, 871–884.
- Clore, G. L. (1994). Why emotions are never unconscious. In P. Ekman & R. J. Davidson (Eds.), *The nature of emotion: Fundamental questions* (pp. 285–290). New York: Oxford University Press.
- Clore, G. L., Schwarz, N., & Conway, M. (1994). Affective causes and consequences of social information processing. In R. S. Wyer & T. K. Srull (Eds.), *Handbook of social cognition* (pp. 323–417). Hillsdale, NJ: Erlbaum.
- Colligan, M. J., Pennebaker, J. W., & Murphy, L. R. (1982). *Mass psychogenic illness*. Hillsdale, NJ: Erlbaum.
- Conner, T., Wood, J. V., & Feldman Barrett, L. (in press). Remembering everyday experience through the prism of self-esteem. *Personality and Social Psychology Bulletin*.
- Conway, M. A. (1990). *Autobiographical memory: An introduction*. Buckingham, England: Open University Press.
- Conway, M. A. (1996). Autobiographical knowledge and autobiographical memory. In D. Rubin (Ed.), *Remembering our past: Studies in autobiographical memory* (pp. 67–93). New York: Cambridge University Press.
- Conway, M. A., & Pleydell-Pearce, C. W. (2000). The construction of autobiographical memories in the self-memory system. *Psychological Review*, 107, 261–288.
- Cross, S. E., & Madson, L. (1997). Models of the self: Self-construal and gender. *Psychological Bulletin*, 112, 5–37.
- Cross, S. E., & Markus, H. (1991). Possible selves across the life span. *Human Development*, 34, 230–255.
- Cross, S. E., & Markus, H. R. (1993). Gender in thought, belief, and action: A cognitive approach. In A. E. Beall & R. J. Sternberg (Eds.), *The psychology of gender* (pp. 55–98). New York: Guilford Press.
- Csikszentmihalyi, M., & LeFevre, J. (1989). Optimal experience in work and leisure. *Journal of Personality and Social Psychology*, 56, 815–822.
- Cutler, S. E., Larsen, R. J., & Bunce, S. C. (1996). Repressive coping style and the experience and recall of emotion: A naturalistic study of daily affect. *Journal of Personality*, 64, 379–405.
- Davis, P. J. (1987). Repression and the inaccessibility of affective memories. *Journal of Personality and Social Psychology*, 53, 585–593.
- Davis, P. J. (1999). Gender differences in autobiographical memory for childhood emotional experiences. *Journal of Personality and Social Psychology*, 76, 498–510.
- Diener, E. (2000). Subjective well-being: The science of happiness and a proposal for a national index. *American Psychologist*, 55, 34–43.
- Diener, E., Diener, M., & Diener, C. (1995). Factors predicting the subjective well-being of nations. *Journal of Personality and Social Psychology*, 49, 851–864.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment*, 49, 71–75.
- Diener, E., & Larsen, R. J. (1984). Temporal stability and cross-situational consistency of affective, behavioral, and cognitive responses. *Journal of Personality and Social Psychology*, 47, 580–592.
- Diener, E., Larsen, R. J., & Emmons, R. A. (1984, August). *Bias in mood recall in happy and unhappy persons*. Paper presented at the 92nd Annual Convention of the American Psychological Association, Toronto, Ontario, Canada.
- Diener, E., Sandvik, E., & Larsen, R. J. (1985). Age and sex effects for emotional intensity. *Developmental Psychology*, 21, 542–546.

- Diener, E., Scollon, C. N., Oishi, S., Dzokoto, V., & Suh, E. M. (2000). Positivity and the construction of life satisfaction judgments: Global happiness is not the sum of its parts. *Journal of Happiness Studies, 1*, 159–176.
- Diener, E., Suh, E., Smith, H., & Shao, L. (1995). National differences in reported subjective well-being: Why do they occur? *Social Indicators Research, 34*, 7–32.
- Doolling, D. J., & Christiaansen, R. E. (1977). Episodic and semantic aspects of memory for prose. *Journal of Experimental Psychology: Human Learning and Memory, 3*, 428–436.
- Dosher, B. A. (1984). Discriminating preexperimental (semantic) from learned (episodic) associations: A speed-accuracy study. *Cognitive Psychology, 16*, 519–555.
- Dunning, D., Griffin, D. W., Milojkovic, J., & Ross, L. (1990). The overconfidence effect in social prediction. *Journal of Personality and Social Psychology, 58*, 568–581.
- Eagly, A. H., & Wood, W. (1991). Explaining sex differences in social behavior: A meta-analytic perspective. *Personality and Social Psychology Bulletin, 17*, 306–315.
- Eich, E., & Schooler, J. W. (2000). Cognition/emotion interactions. In E. Eich, J. F. Kihlstrom, G. H. Bower, J. P. Forgas, & P. M. Niedenthal (Eds.), *Cognition and emotion* (pp. 3–29). New York: Oxford University Press.
- Eid, M., & Diener, E. (1998). *Global judgments of subjective well-being: Situational variability and long-term stability*. Unpublished manuscript, University of Illinois at Urbana-Champaign.
- Eisenberg, N., & Lennon, R. (1983). Sex differences in empathy and related constructs. *Psychological Bulletin, 94*, 100–131.
- Ekman, P. (1984). Expression and the nature of emotion. In K. R. Scherer & P. Ekman (Eds.), *Approaches to emotion* (pp. 319–344). Hillsdale, NJ: Erlbaum.
- Epstein, S. (1973). The self-concept revisited: Or a theory of a theory. *American Psychologist, 28*, 404–416.
- Epstein, S. (1983). Aggregation and beyond: Some basic issues in the prediction of behavior. *Journal of Personality, 51*, 360–392.
- Epstein, S. (1994). Integration of the cognitive and psychodynamic unconscious. *American Psychologist, 49*, 709–724.
- Fazio, R. H. (1990). A practical guide to the use of response latency in social psychological research. In C. Hendrick & M. S. Clark (Eds.), *Review of personality and social psychology* (Vol. 11, pp. 74–97). Newbury Park, CA: Sage.
- Feldman Barrett, L. (1997). The relationships among momentary emotion experience, personality descriptions, and retrospective ratings of emotion. *Personality and Social Psychology Bulletin, 23*, 1100–1110.
- Feldman Barrett, L., Lane, R. D., Sechrest, L., & Schwartz, G. E. (2000). Sex differences in emotional awareness. *Personality and Social Psychology Bulletin, 26*, 1027–1035.
- Feldman Barrett, L., & Morganstein, M. (1996). *Sex differences in the experience of emotion: Retrospective versus momentary ratings*. Unpublished manuscript, Boston College.
- Feldman Barrett, L., Robin, L., Pietromonaco, P. R., & Eysell, K. M. (1998). Are women the “more emotional” sex? Evidence from emotional experiences in social context. *Cognition & Emotion, 12*, 555–578.
- Folkman, S., Lazarus, R. S., Gruen, R. J., & DeLongis, A. (1986). Appraisal, coping, health status, and psychological symptoms. *Journal of Personality and Social Psychology, 50*, 571–579.
- Fredrickson, B. L., & Kahneman, D. (1993). Duration neglect in retrospective evaluations of affective episodes. *Journal of Personality and Social Psychology, 65*, 45–55.
- Fuhrman, R. W., & Funder, D. C. (1995). Convergence between self and peer in the response-time processing of trait-relevant information. *Journal of Personality and Social Psychology, 69*, 961–974.
- Fujita, F., Diener, E., & Sandvik, E. (1991). Gender differences in negative affect and well-being: The case for emotional intensity. *Journal of Personality and Social Psychology, 61*, 427–434.
- Funder, D. C. (1995). On the accuracy of personality judgment: A realistic approach. *Psychological Review, 102*, 652–670.
- Galini, D. (1994). The structure of awareness: Contemporary applications of William James’ forgotten concept of “the fringe.” *Journal of Mind and Behavior, 15*, 375–401.
- Gilbert, D. T., Pined, E. C., Wilson, T. D., Blumberg, S. J., & Wheatley, T. P. (1998). Immune neglect: A source of durability bias in affective forecasting. *Journal of Personality and Social Psychology, 75*, 617–638.
- Gilovich, T., Kerr, M., & Medvec, V. H. (1993). Effect of temporal perspective on subjective confidence. *Journal of Personality and Social Psychology, 64*, 552–560.
- Gough, H. (1975). Personality factors related to reported severity of menstrual distress. *Journal of Abnormal Psychology, 84*, 59–65.
- Grossman, M., & Wood, W. (1993). Sex differences in intensity of emotional experience: A social role interpretation. *Journal of Personality and Social Psychology, 65*, 1010–1022.
- Hansen, R. D., & Hansen, C. H. (1988). Repression of emotionally tagged memories: The architecture of less complex emotions. *Journal of Personality and Social Psychology, 55*, 811–818.
- Hastie, R., & Park, B. (1986). The relationship between memory and judgment depends on whether the judgment task is memory-based or on-line. *Psychological Review, 93*, 258–268.
- Herrmann, D. J., & Harwood, J. R. (1980). More evidence for the existence of separate semantic and episodic stores in long-term memory. *Journal of Experimental Psychology: Human Learning and Memory, 6*, 467–478.
- James, W. (1890). *Principles of psychology*. New York: Holt.
- Johnson, J. T., & Shulman, G. A. (1988). More alike than meets the eye: Perceived gender differences in subjective experience and its display. *Sex Roles, 19*, 67–79.
- Johnson, M. K., & Sherman, S. J. (1990). Constructing and reconstructing the past and the future in the present. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 2, pp. 482–526). New York: Guilford Press.
- Josephs, R. A., Markus, H. R., & Tafarodi, R. W. (1992). Gender and self-esteem. *Journal of Personality and Social Psychology, 63*, 391–402.
- Kahneman, D. (1999). Objective happiness. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being: The foundations of hedonic psychology* (pp. 85–105). New York: Russell Sage Foundation.
- Kahneman, D., Fredrickson, B. L., Schreiber, C. A., & Redelmeier, D. A. (1993). When more pain is preferred to less: Adding a better end. *Psychological Science, 4*, 401–405.
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica, 47*, 263–291.
- Kash, K. M., Holland, J. C., Halper, M. S., & Miller, D. G. (1992). Psychological distress and surveillance behaviors of women with a family history of breast cancer. *Journal of the National Cancer Institute, 84*, 24–30.
- Kent, G. (1985). Memory for dental pain. *Pain, 21*, 187–194.
- Klein, S. B., & Loftus, J. (1993). Behavioral experience and trait judgments about the self. *Personality and Social Psychology Bulletin, 19*, 740–745.
- Klein, S. B., Loftus, J., & Kihlstrom, J. F. (1996). Self-knowledge of an amnesic patient: Toward a neuropsychology of personality and social psychology. *Journal of Experimental Psychology: General, 125*, 250–260.
- Klein, S. B., Loftus, J., & Sherman, J. W. (1993). The role of summary and specific behavioral memories in trait judgments about the self. *Personality and Social Psychology Bulletin, 19*, 305–311.
- Klein, S. B., Loftus, J., Trafton, R. G., & Fuhrman, R. W. (1992). The use of exemplars and abstractions in trait judgments: A model of trait

- knowledge about the self and others. *Journal of Personality and Social Psychology*, 63, 739–753.
- Knowles, E. S., & Condon, C. A. (1999). Why people say “yes”: A dual-process theory of acquiescence. *Journal of Personality and Social Psychology*, 77, 379–386.
- Kring, A. M., Smith, D. A., & Neale, J. M. (1994). Individual differences in dispositional expressiveness: Development and validation of the Expressiveness Scale. *Journal of Personality and Social Psychology*, 66, 934–949.
- LaFrance, M., & Banaji, M. (1992). Towards a reconsideration of the gender–emotion relationship. In M. S. Clark (Ed.), *Emotion and social behavior: Vol. 14. Review of personality and social psychology* (pp. 178–201). Newbury Park, CA: Sage.
- Lakoff, G., & Johnson, M. (1999). *Philosophy in the flesh: The embodied mind and its challenge to Western thought*. New York: Basic Books.
- Lang, P. J., Kozak, M. J., Miller, G. A., Levin, D. N., & McLean, A. (1980). Emotional imagery: Conceptual structure and pattern of somato-visceral response. *Psychophysiology*, 17, 179–192.
- Larsen, R. J. (1992). Neuroticism and selective encoding and recall of symptoms: Evidence from a combined current-retrospective study. *Journal of Personality and Social Psychology*, 62, 480–488.
- Larsen, R. J., & Diener, E. (1987). Affective intensity as an individual difference characteristic: A review. *Journal of Research in Personality*, 21, 1–39.
- Levine, L. J. (1997). Reconstructing memory for emotions. *Journal of Experimental Psychology: General*, 126, 165–177.
- Liberman, N., & Trope, Y. (1998). The role of feasibility and desirability considerations in near and distant future decisions: A test of temporal construal theory. *Journal of Personality and Social Psychology*, 75, 5–18.
- Lichtenstein, M., & Srull, T. K. (1987). Processing objectives as a determinant of the relationship between recall and judgment. *Journal of Experimental Social Psychology*, 23, 93–118.
- Loewenstein, G. (1996). Out of control: Visceral influences on behavior. *Organizational Behavior and Human Decision Processes*, 65, 272–292.
- Loewenstein, G., & Schkade, D. (1999). Wouldn't it be nice?: Predicting future feelings. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being: The foundations of hedonic psychology* (pp. 85–105). New York: Sage.
- Maier, N. R. F. (1931). Reasoning in humans: II. The solution of a problem and its appearance in consciousness. *Journal of Comparative Psychology*, 12, 181–194.
- Manstead, A. S. R. (1992). Gender differences in emotion. In M. A. Gale & M. W. Eysenck (Eds.), *Handbook of individual differences: Biological perspectives* (pp. 355–387). Chichester, England: Wiley.
- Markus, H., & Nurius, P. (1986). Possible selves. *American Psychologist*, 41, 954–969.
- Marsh, H. W. (1993). Academic self-concept: Theory measurement and research. In J. Suls (Ed.), *Psychological perspectives on the self* (Vol. 4, pp. 59–98). Hillsdale, NJ: Erlbaum.
- Marsh, H. W., & Yeung, A. S. (1998). Top-down, bottom-up, and horizontal models: The direction of causality in multidimensional, hierarchical self-concept models. *Journal of Personality and Social Psychology*, 75, 509–527.
- McAdams, D. P. (1993). *The stories we live by: Personal myths and the making of the self*. New York: Morrow.
- McAdams, D. P., Hoffman, B. J., Mansfield, E. D., & Day, R. (1996). Themes of agency and communion in significant autobiographical scenes. *Journal of Personality*, 64, 339–377.
- McCaul, K., & Malott, J. (1984). Distraction and coping with pain. *Psychological Bulletin*, 95, 516–533.
- McClelland, J. L., McNaughton, B. L., & O'Reilly, R. C. (1995). Why there are complementary learning systems in the hippocampus and neocortex: Insights from the successes and failures of connectionist models of learning and memory. *Psychological Review*, 102, 419–437.
- McFarland, C., & Ross, M. (1987). The relation between current impressions and memories of self and dating partners. *Personality and Social Psychology Bulletin*, 13, 228–238.
- McFarland, C., Ross, M., & DeCourville, N. (1989). Women's theories of menstruation and biases in the recall of menstrual symptoms. *Journal of Personality and Social Psychology*, 57, 522–531.
- Mechanic, D. (1972). Social psychologic factors affecting the presentation of bodily complaints. *New England Journal of Medicine*, 286, 1132–1139.
- Metcalfe, J., & Mischel, W. (1999). A hot/cool system analysis of delay of gratification: Dynamics of willpower. *Psychological Review*, 106, 3–19.
- Mitchell, T. R., Thompson, L., Peterson, E., & Cronk, R. (1997). Temporal adjustments in the evaluation of events: The “rosy view.” *Journal of Experimental Social Psychology*, 33, 421–448.
- Myers, D. G., & Diener, E. (1995). Who is happy? *Psychological Science*, 6, 10–18.
- Neely, J. H., & Durgunoglu, A. Y. (1985). Dissociative episodic and semantic priming effects in episodic recognition and lexical decision tasks. *Journal of Memory and Language*, 24, 466–489.
- Nisbett, R. W., & Wilson, T. D. (1977). Telling more than we know: Verbal reports on mental processes. *Psychological Review*, 84, 231–259.
- Nolen-Hoeksema, S., Parker, L., & Larson, J. (1994). Ruminative coping with depressed mood following loss. *Journal of Personality and Social Psychology*, 67, 92–104.
- Nolen-Hoeksema, S., & Rusting, C. L. (1999). Gender differences in well-being. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being: The foundations of hedonic psychology* (pp. 330–350). New York: Russell Sage Foundation.
- Oishi, S. (in press). Experiencing and remembering of well-being: A cross-cultural analysis. *Personality and Social Psychology Bulletin*.
- Oishi, S., & Diener, E. (2002). *Culture and well-being: The cycle of action, evaluation, and decision*. Manuscript submitted for publication.
- Oishi, S., & Schimmack, U. (2002). *The frequency judgments of emotion: An interactive effect of culture and emotion-eliciting situations*. Manuscript submitted for publication.
- Oishi, S., Wyer, R. S., & Colcombe, S. J. (2000). Cultural variation in the use of current life satisfaction in future outlook. *Journal of Personality and Social Psychology*, 78, 434–445.
- Olasov, B., & Jackson, J. (1987). Effects of expectancies on women's reports of moods during the menstrual cycle. *Psychosomatic Medicine*, 49, 65–78.
- Pennebaker, J. W. (1981). Stimulus characteristics influencing estimations of heart rate. *Psychophysiology*, 18, 540–548.
- Pennebaker, J. W. (1982). *The psychology of physical symptoms*. New York: Springer-Verlag.
- Pennebaker, J. W. (2000). Psychological factors influencing the reporting of physical symptoms. In A. Stone, J. S. Turkkan, C. A. Bachrach, J. B. Jobe, H. S. Kurtzman, & V. S. Cain (Eds.), *The science of self-report: Implications for research and practice* (pp. 299–315). Mahwah, NJ: Erlbaum.
- Pervin, L. A. (1999). Epilogue: Constancy and change in personality theory and research. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 689–704). New York: Guilford Press.
- Ptacek, J. T., Smith, R. E., Espe, K., & Rafferty, B. (1994). Limited correspondence between daily coping reports and retrospective coping recall. *Psychological Assessment*, 6, 41–49.
- Pyszczynski, T., Holt, K., & Greenberg, J. (1987). Depression, self-focused attention, and expectancies for positive and negative future life events for self and others. *Journal of Personality and Social Psychology*, 52, 994–1001.

- Rachman, S. J., & Arntz, A. (1991). The overprediction and underprediction of pain. *Clinical Psychology Review, 11*, 339–355.
- Rachman, S. J., & Bichard, S. (1988). The overprediction of fear. *Clinical Psychology Review, 8*, 303–313.
- Rachman, S. J., & Eryl, K. (1989). Predicting and remembering recurrent pain. *Behaviour Research and Therapy, 23*, 585–600.
- Redelmeier, D. A., & Kahneman, D. (1996). Patients' memories of painful medical treatments: Real-time and retrospective evaluations of two minimally invasive procedures. *Pain, 66*, 3–8.
- Reis, H. T., & Wheeler, L. (1991). Studying social interaction with the Rochester Interaction Record. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 24, pp. 269–318). San Diego, CA: Academic Press.
- Robinson, J. A. (1996). Perspective, meaning, and remembering. In D. Rubin (Ed.), *Remembering our past: Studies in autobiographical memory* (pp. 199–217). New York: Cambridge University Press.
- Robinson, M. D. (2000). The reactive and prospective functions of mood: Its role in linking daily experiences and cognitive well-being. *Cognition & Emotion, 14*, 145–176.
- Robinson, M. D., & Clore, G. L. (2001). Simulation, scenarios, and emotional appraisal: Testing the convergence of real and imagined reactions to emotional stimuli. *Personality and Social Psychology Bulletin, 27*, 1520–1532.
- Robinson, M. D., & Clore, G. L. (2002). Episodic and semantic knowledge in emotional self-report: Evidence for two judgment processes. *Journal of Personality and Social Psychology, 83*, 198–215.
- Robinson, M. D., & Johnson, J. T. (1997). Is it emotion or is it stress? Gender stereotypes and the perception of subjective experience. *Sex Roles, 36*, 235–258.
- Robinson, M. D., Johnson, J. T., & Shields, S. A. (1998). The gender heuristic and the database: Factors affecting the perception of gender-related differences in the experience and display of emotions. *Basic and Applied Social Psychology, 20*, 206–219.
- Robinson, M. D., Robertson, D. A., & Syty, N. A. (2002). *Personality as belief: Evidence for situation-contingent activation*. Unpublished manuscript, North Dakota State University.
- Robinson, M. D., & Ryff, C. D. (1999). The role of self-deception in perceptions of past, present, and future happiness. *Personality and Social Psychology Bulletin, 25*, 611–622.
- Rosenberg, E. L. (1998). Levels of analysis and the organization of affect. *Review of General Psychology, 2*, 247–270.
- Ross, M. (1989). The relation of implicit theories to the construction of personal histories. *Psychological Review, 96*, 341–357.
- Ross, M., Buehler, R., & Karr, J. W. (1998). Assessing the accuracy of conflicting autobiographical memories. *Memory & Cognition, 26*, 1233–1244.
- Rubin, D. C., & Wetzel, A. E. (1996). One hundred years of forgetting: A quantitative description of retention. *Psychological Review, 103*, 734–760.
- Ruble, D. N. (1977, July 15). Premenstrual symptoms: A reinterpretation. *Science, 197*, 291–292.
- Ruble, D. N., & Brooks-Gunn, J. (1979). Menstrual symptoms: A social cognition analysis. *Journal of Behavioural Medicine, 2*, 171–194.
- Schachter, S., & Singer, J. E. (1962). Cognitive, social, and physiological determinants of emotional state. *Psychological Review, 69*, 379–399.
- Schacter, D. L., Wagner, A. D., & Buckner, R. L. (2000). Memory systems of 1999. In E. Tulving & F. I. M. Craik (Eds.), *The Oxford handbook of memory* (pp. 627–643). New York: Oxford University Press.
- Scheier, M. F., & Carver, C. S. (1993). On the power of positive thinking: The benefits of being optimistic. *Current Directions in Psychological Science, 2*, 26–30.
- Schell, T. L., Klein, S. B., & Babey, S. H. (1996). Testing a hierarchical model of self-knowledge. *Psychological Science, 7*, 170–173.
- Scherer, K. R., Wallbott, H. G., & Summerfield, A. B. (1986). *Experiencing emotion: A cross-cultural study*. New York: Cambridge University Press.
- Schimmack, U. (1996). *The relationship between extraversion/neuroticism and positive/negative affect: A meta-analysis*. Unpublished manuscript, Free University, Berlin, Germany.
- Schimmack, U., & Hartmann, K. (1997). Individual differences in the memory representation of emotional episodes: Exploring the cognitive processes in repression. *Journal of Personality and Social Psychology, 73*, 1064–1079.
- Schkade, D. A., & Kahneman, D. (1997). Does living in California make people happy?: A focusing illusion in judgments of life satisfaction. *Psychological Science, 9*, 340–346.
- Schwartz, J. E., Neale, J., Marco, C., Shiffman, S. S., & Stone, A. A. (1999). Does trait coping exist? A momentary assessment approach to the evaluation of traits. *Journal of Personality and Social Psychology, 77*, 360–369.
- Schwarz, N. (1999). Self-reports: How the questions shape the answers. *American Psychologist, 54*, 93–105.
- Schwarz, N., & Strack, F. (1991). Evaluating one's life: A judgment model of subjective well-being. In F. Strack, M. Argyle, & N. Schwarz (Eds.), *Subjective well-being: An interdisciplinary perspective* (pp. 27–47). Oxford, England: Pergamon Press.
- Scollon, C. N., Diener, E., Lucas, R., Oishi, S., & Biswas-Diener, R. (2001, May). *Accentuate the positive: Exploring memory for emotions*. Paper presented at the Annual Meeting of the Midwestern Psychological Association, Chicago, IL.
- Seidlitz, L., & Diener, E. (1998). Sex differences in the recall of affective experiences. *Journal of Personality and Social Psychology, 74*, 262–271.
- Semin, G. R., & Smith, E. R. (1999). Revisiting the past and back to the future: Memory systems and the linguistic representation of social events. *Journal of Personality and Social Psychology, 76*, 877–892.
- Sherman, S. J. (1980). On the self-erasing nature of errors of prediction. *Journal of Personality and Social Psychology, 39*, 211–221.
- Shields, S. A. (1987). Women, men, and the dilemma of emotions. In P. Shaver & C. Hendrick (Eds.), *Sex and gender: Vol. 7. Review of personality and social psychology* (pp. 229–250). Newbury Park, CA: Sage.
- Shields, S. A. (1991). Gender in the psychology of emotion: A selective research review. In K. T. Strongman (Ed.), *International review of studies on emotion* (Vol. 1, pp. 227–245). New York: Wiley.
- Shields, S. A. (1995). The role of emotion beliefs and values in gender development. In N. Eisenberg (Ed.), *Social development: Vol. 15. Review of personality and social psychology* (pp. 212–232). Thousand Oaks, CA: Sage.
- Shiffman, S. (2000). Real-time self-report of momentary states in the natural environment: Computerized ecological momentary assessment. In A. Stone, J. S. Turkkan, C. A. Bachrach, J. B. Jobe, H. S. Kurtzman, & V. S. Cain (Eds.), *The science of self-report: Implications for research and practice* (pp. 277–296). Mahwah, NJ: Erlbaum.
- Shoben, E. J., Wescourt, K. T., & Smith, E. E. (1978). Sentence verification, sentence recognition, and the semantic-episodic distinction. *Journal of Experimental Psychology: Human Learning and Memory, 4*, 304–317.
- Skelton, J. A., & Strohmets, D. B. (1990). Priming symptom reports with health-related cognitive activity. *Personality and Social Psychology Bulletin, 16*, 449–464.
- Skowronski, J. J., Betz, A. L., Thompson, C. P., & Shannon, L. (1991). Social memory in everyday life: Recall of self-events and other-events. *Journal of Personality and Social Psychology, 60*, 831–843.
- Slade, P. (1984). Premenstrual emotional changes in normal women: Fact or fiction? *Journal of Psychosomatic Research, 28*, 1–7.
- Spence, J. T., Helmreich, R., & Stapp, J. (1975). Ratings of self and peers on sex role attributes and their relation to self-esteem and conceptions of

- masculinity and femininity. *Journal of Personality and Social Psychology*, 32, 29–39.
- Sprecher, S. (1999). "I love you more today than yesterday": Romantic partners' perceptions of changes of love and related affect over time. *Journal of Personality and Social Psychology*, 76, 46–53.
- Staats, S., & Skowronski, J. J. (1992). Perceptions of self-affect: Now and in the future. *Social Cognition*, 10, 415–431.
- Stangor, C., & McMillan, D. (1992). Memory for expectancy-congruent and expectancy-incongruent information: A review of the social and social developmental literatures. *Psychological Bulletin*, 111, 42–61.
- Stapley, J. C., & Haviland, J. M. (1989). Beyond depression: Gender differences in normal adolescents' emotional experiences. *Sex Roles*, 20, 295–308.
- Stone, A. A., Hedges, S. M., Neale, J. M., & Satin, M. S. (1985). Prospective and cross-sectional mood reports offer no evidence of a "Blue Monday" phenomenon. *Journal of Personality and Social Psychology*, 49, 129–134.
- Stone, A. A., Schwartz, J. E., Neale, J. M., Shiffman, S., Marco, C. A., Hickcox, M., et al. (1998). A comparison of coping assessed by ecological momentary assessment and retrospective recall. *Journal of Personality and Social Psychology*, 74, 1670–1680.
- Stone, A. A., Shiffman, S. S., & DeVries, M. W. (1999). Ecological momentary assessment. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being: The foundations of hedonic psychology* (pp. 26–39). New York: Russell Sage Foundation.
- Strongman, K. T., & Kemp, S. (1991). Autobiographical memory for emotion. *Bulletin of the Psychonomic Society*, 29, 195–198.
- Stuss, D. T., & Benson, D. F. (1984). Neuropsychological studies of the frontal lobes. *Psychological Bulletin*, 95, 3–28.
- Swann, W. B., Jr., & Read, S. J. (1981). Acquiring self-knowledge: The search for feedback that fits. *Journal of Personality and Social Psychology*, 41, 1119–1128.
- Swann, W. B., Jr., & Schroeder, D. G. (1995). The search for beauty and truth: A framework for understanding reactions to evaluations. *Personality and Social Psychology Bulletin*, 21, 1307–1318.
- Tangney, J. P. (1990). Assessing individual differences in proneness to shame and guilt: Development of the Self-Conscious Affect and Attribution Inventory. *Journal of Personality and Social Psychology*, 59, 102–111.
- Taylor, S. E. (1991). Asymmetrical effects of positive and negative events: The mobilization–minimization hypothesis. *Psychological Bulletin*, 110, 67–85.
- Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin*, 103, 193–210.
- Taylor, S., & Rachman, S. J. (1994). Stimulus estimation and the overprediction of fear. *British Journal of Clinical Psychology*, 33, 173–181.
- Teasdale, J. D., & Barnard, P. J. (1993). *Affect, cognition and change*. London: Erlbaum.
- Telch, M. J., Valentiner, D., & Bolte, M. (1994). Proximity to safety and its effects on fear prediction bias. *Behaviour Research and Therapy*, 32, 747–751.
- Thomas, D. L., & Diener, E. (1990). Memory accuracy in the recall of emotions. *Journal of Personality and Social Psychology*, 59, 291–297.
- Thompson, L. (1997, October). *The rosy effect: Prospection and retrospection about personal life events*. Paper presented at the annual meeting of the Society for Experimental Social Psychology, Toronto, Ontario, Canada.
- Thorne, A., & Michaelieu, Q. (1996). Situating adolescent gender and self-esteem with personal memories. *Child Development*, 67, 1374–1390.
- Totterdell, P., Parkinson, B., Briner, R. B., & Reynolds, S. (1997). Forecasting feelings: The accuracy and effects of self-predictions of mood. *Journal of Social Behavior and Personality*, 12, 631–650.
- Tulving, E. (1984). Precis of elements of episodic memory. *Behavioral and Brain Sciences*, 7, 223–268.
- Tulving, E. (1993a). Self-knowledge of an amnesic is represented abstractly. In T. K. Srull & R. S. Wyer (Eds.), *Advances in social cognition* (Vol. 5, pp. 147–156). Hillsdale, NJ: Erlbaum.
- Tulving, E. (1993b). What is episodic memory? *Current Directions in Psychological Science*, 2, 67–70.
- Tulving, E., Schacter, D. L., McLachlan, D. R., & Moscovitch, M. (1988). Priming of semantic autobiographical knowledge: A case study of retrograde amnesia. *Brain and Cognition*, 8, 3–20.
- Vallone, R. P., Griffin, D. W., Lin, S., & Ross, L. (1990). Overconfident predictions of future actions and outcomes by self and others. *Journal of Personality and Social Psychology*, 58, 582–592.
- Varey, C., & Kahneman, D. (1992). Experiences extended across time: Evaluation of moments and episodes. *Journal of Behavioral Decision Making*, 5, 169–185.
- Veenhoven, R. (1993). *Happiness in nations: Subjective appreciation of life in 56 nations, 1946–1992*. Rotterdam, the Netherlands: Erasmus University Rotterdam.
- Watson, D. (2000). *Mood and temperament*. New York: Guilford Press.
- Watson, D., & Clark, L. A. (1991). Self- versus peer ratings of specific emotional traits: Evidence of convergent and discriminant validity. *Journal of Personality and Social Psychology*, 60, 927–940.
- Watson, D., & Pennebaker, J. W. (1989). Health complaints, stress, and distress: Exploring the central role of negative affectivity. *Psychological Review*, 96, 234–254.
- Weinberger, D. A., Schwartz, G. E., & Davidson, R. J. (1979). Low-anxious, high-anxious, and repressive coping styles: Psychometric patterns and behavioral and physiological responses to stress. *Journal of Abnormal Psychology*, 88, 369–380.
- Weinstein, N. D. (1980). Unrealistic optimism about future life events. *Journal of Personality and Social Psychology*, 39, 806–820.
- Weinstein, N. D. (1982). Community noise problems: Evidence against adaptation. *Journal of Environmental Psychology*, 2, 87–97.
- Wheeler, M. A., Stuss, D. T., & Tulving, E. (1997). Toward a theory of episodic memory: The frontal lobes and autoeotic consciousness. *Psychological Bulletin*, 121, 331–354.
- Widiger, T. A., & Settle, S. A. (1987). Broverman et al. revisited: An artifactual sex bias. *Journal of Personality and Social Psychology*, 53, 463–469.
- Williams, J. E., & Bennett, S. M. (1975). The definition of sex stereotypes via the adjective check list. *Sex Roles*, 1, 327–337.
- Williams, J. M. G. (1996). Depression and the specificity of autobiographical memory. In D. Rubin (Ed.), *Remembering our past: Studies in autobiographical memory* (pp. 244–267). New York: Cambridge University Press.
- Wilson, T. D., Laser, P. S., & Stone, J. I. (1982). Judging the predictors of one's own mood: Accuracy and the use of shared theories. *Journal of Experimental Social Psychology*, 18, 537–556.
- Wilson, T. D., Lisle, D. J., Kraft, D., & Wetzel, C. G. (1989). Preferences as expectation-driven inferences: Effects of affective expectations on affective experience. *Journal of Personality and Social Psychology*, 56, 519–530.
- Wilson, T. D., & Stone, J. I. (1985). More on telling more than we can know. In P. Shaver (Ed.), *Review of personality and social psychology* (Vol. 6, pp. 167–183). Beverly Hills, CA: Sage.
- Wilson, T. D., Wheatley, T., Meyers, J. M., Gilbert, D. T., & Axsom, D. (2000). Focalism: A source of durability bias in affective forecasting. *Journal of Personality and Social Psychology*, 78, 821–836.
- Winkielman, P., Knäuper, B., & Schwarz, N. (1998). Looking back in anger: Reference periods change the interpretation of emotion frequency questions. *Journal of Personality and Social Psychology*, 75, 719–728.
- Woike, B., Gershkovich, I., Piorowski, R., & Polo, M. (1999). The role of

- motives in the content and structure of autobiographical memory. *Journal of Personality and Social Psychology*, 76, 600–612.
- Wood, W., Saltzberg, J. A., Neale, J. M., Stone, A. A., & Rachmiel, T. B. (1990). Self-focused attention, coping responses, and distressed mood in everyday life. *Journal of Personality and Social Psychology*, 58, 1027–1036.
- Woods, S., Natterson, J., & Silverman, J. (1966). Medical students' disease: Hypochondriasis in medical education. *Journal of Medical Education*, 41, 785–790.
- Wyer, R. S., Clore, G. L., & Isbell, L. M. (1999). Affect and information processing. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 31, pp. 1–77). New York: Academic Press.
- Zuroff, D. C. (1989). Judgments of frequency of social stimuli: How schematic is person memory? *Journal of Personality and Social Psychology*, 56, 890–898.

Received March 15, 1999

Revision received April 22, 2002

Accepted April 23, 2002 ■

New Editors Appointed, 2004–2009

The Publications and Communications Board of the American Psychological Association announces the appointment of five new editors for 6-year terms beginning in 2004.

Except where noted, as of January 1, 2003, manuscripts should be directed to the following individuals:

- For *Psychology and Aging* (<http://www.apa.org/journals/pag.html>), submit manuscripts to **Rose T. Zacks, PhD**, Department of Psychology, Michigan State University, East Lansing, MI 48824-1117.
- For *Psychological Assessment* (<http://www.apa.org/journals/pas.html>), submit manuscripts to **Milton E. Strauss, PhD**, Department of Psychology, Case Western Reserve University, Cleveland, OH 44106-7123.
- For *Journal of Family Psychology* (<http://www.apa.org/journals/fam.html>), submit manuscripts to **Anne Kazak, PhD**, ABPP, Oncology Psychosocial Research, The Children's Hospital of Philadelphia, Room 1486 (Market Street), 34th and Civic Center Boulevard, Philadelphia, PA 19104. For overnight couriers: Room 1486, 3535 Market Street, Philadelphia, PA 19104.
- For *Journal of Experimental Psychology: Animal Behavior Practices* (<http://www.apa.org/journals/xan.html>), submit manuscripts as of January 15 to **Nicholas Mackintosh**, Department of Experimental Psychology, University of Cambridge, Downing Street, Cambridge, CB2 3EB, United Kingdom.
- For *Journal of Personality and Social Psychology: Personality Processes and Individual Differences* section (<http://www.apa.org/journals/psp.html>), submit manuscripts to **Charles S. Carver, PhD**, Department of Psychology, University of Miami, P.O. Box 248185, Coral Gables, FL 33124-2070.

Electronic submission: As of January 1, 2003, authors will be expected to submit manuscripts electronically through the journal's Manuscript Submission Portal (see the Web site listed above with each journal title). Authors who are unable to do so should correspond with the editor's office about alternatives.

Manuscript submission patterns make the precise date of completion of the 2003 volumes uncertain. Current editors Leah L. Light, PhD, Stephen N. Haynes, PhD, Ross D. Parke, PhD, Mark E. Bouton, PhD, and Ed Diener, PhD, respectively, will receive and consider manuscripts through December 31, 2002. Should 2003 volumes be completed before that date, manuscripts will be redirected to the new editors for consideration in 2004 volumes.