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Remembering past emotions: The role of current appraisals

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This research assessed the stability of memory for emotions over time, and the relationship between current appraisals and memory for emotions. A week after the televised announcement of the verdict in the criminal trial of Mr Orenthal James (O.J.) Simpson, participants were asked to describe their emotional reactions and their appraisals when they first learned of the verdict. After a delay of two months, and again after more than a year, participants recalled their initial emotional reactions and described their current appraisals of the verdict. After two months, the more participants' appraisals of Mr Simpson's innocence or guilt had changed, the less stable were their memories for the intensities of happiness and anger. After two months, and after more than a year, systematic changes in memory for happiness, anger, and surprise were found in directions consistent with current appraisals. These findings replicate and extend the findings of Levine (1997), and suggest that memories for emotional responses are partially reconstructed based on current appraisals of events.

This article examines the stability of people's memories for their past emotions over time and the role of changing appraisals in the reconstruction of such memories. Memory for emotions is important in both clinical and nonclinical settings. Clinical instruments routinely ask people to rate the intensity and

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frequency with which they experienced affective states, such as depression and anger, over the past weeks or months. Diagnostic and treatment decisions concerning mental disorders are based partly on self-reports of this type (Christianson & Safer, 1996; Keuler & Safer, 1998; Rogler, Malgady, & Tryon, 1992; Thomas & Diener, 1990). In nonclinical settings, remembering past emotions helps people make decisions about the future. People plan to maintain or reinstate circumstances that evoked positive emotions and to change or avoid circumstances that evoked negative emotions (Breckler, 1994; Levine, 1997). It thus becomes important to identify factors associated with stability or change in memories for emotions.

Theoretical accounts conflict concerning whether memories for past emotions are stored permanently and accurately or whether they are subject to forgetting and distortion as are memories for other aspects of autobiographical events (e.g., McCloskey, Wible, & Cohen, 1988; Neisser & Harsch, 1992). Brown and Kulik (1977) included emotions as one of the features of surprising and consequential events that they expected to be retained over time with almost photographic accuracy. According to LeDoux and his colleagues, memories for the emotional significance of events are stored permanently and mediated by different brain circuits than memories for events themselves (LeDoux, 1992; LeDoux, Romanski, & Xagoraris, 1989). Similarly, Lang (1994) proposed that, because intense emotions are strongly connected to the subcortical motivational system, they are easily recalled, resistant to extinction, and easily reactivated. These claims are partly based on the finding that, once extinguished, classically conditioned avoidance responses can be reinstated by exposure to a stressful stimulus. Thus extinction does not erase the emotional memory, it simply suppresses the behavioural response. Zajonc (1980) argued for a separate memory store for affective responses based on the finding that, under certain conditions, affective responses can be retrieved even when the events that evoked the reactions have been forgotten. Consistent with this view are case studies of individuals who have experienced traumas, and experimental studies of individuals with amnesias, showing that emotions can be dissociated from memories of the events that evoked them (Christianson, 1992; Daum, Flor, Brodbeck, & Birbaumer, 1996; Tobias, Kihlstrom, & Schacter, 1992; Witvliet, 1997).

Other investigators have argued, however, that emotions are not stored directly in memory at all, but are reconstructed based on recall of emotion-eliciting circumstances (for reviews, see Levine, 1997; Robinson, 1996; Ross, 1991). According to William James, for example, emotions are recreated rather than remembered: Recalling circumstances that elicited an emotion in the past causes people to experience a similar but new emotion in the present (James, 1890/1950, p. 474). Studies that have explicitly measured the accuracy of memory for emotion have uncovered inaccuracies that are more consistent with at least partial reconstruction, than with direct retrieval, of past emotions.

Students recalling the intensity of their pre-exam anxiety (Devito & Kubis, 1983; Keuler & Safer, 1998), people recalling how anxious they felt just before donating blood (Breckler, 1994), and psychiatric patients recalling past symptoms of depression (Schrader, Davis, Stefanovic, & Christie, 1990; Zimmerman & Coryell, 1986) tended to overestimate the intensity of past negative emotions. Furthermore, people asked to estimate the average intensity of emotions previously recorded in diaries tended to exaggerate both positive and negative affect (Hedges, Jandorf, & Stone, 1985; Parkinson, Briner, Reynolds, & Totterdell, 1995; Thomas & Diener, 1990). These findings indicate that people's memories for the intensity of past emotions change over time.

The causes of these changes remain to be explained. Some researchers have attempted to explain the overestimation of past emotions in terms of the context in which emotions are retrieved. For example, when people recall how they felt before an exam, during psychiatric treatment, or during the early years of marriage, they may be motivated to exaggerate previous unhappiness so that they can believe they are better off in the present (Conway & Ross, 1984; Karney & Coombs, 2000; Keuler & Safer, 1998; Ross, 1989). In diary studies, intense emotions may be more salient than mild emotions at the time of recall, leading to an overestimation of the average intensity of both positive and negative emotion (Parkinson et al., 1995; Thomas & Diener, 1990).

Levine (1997) proposed a more general model of reconstruction of memory for emotions based on cognitive appraisal theory. ''Appraisal'' refers to a person's conscious or unconscious evaluation of the relationship between a stimulus and his or her well-being (Arnold, 1960; Lazarus, 1968, 1991). According to appraisal theories, people experience emotions primarily when they evaluate circumstances as being relevant to their goals, desires, or values. Specific types of appraisals elicit specific emotional responses (e.g., Frijda, 1987; Levine, 1996; Oatley & Johnson-Laird, 1987; Roseman, Antoniou, & Jose, 1996; Scherer, 1984, 1998; Smith, Haynes, Lazarus, & Pope, 1993; Smith & Lazarus, 1993; Stein & Levine, 1987, 1989; Weiner, 1985). Levine (1997) proposed that, when gaps exist in people's memories for their past emotions, emotional memories are reconstructed based on recall of the emotion-eliciting circumstances and their appraisals of those circumstances. If people's appraisals have changed since the occurrence of the emotion-eliciting event, they should show a bias toward recalling emotions that are consistent with their current appraisals. This model draws on and extends previous work indicating that current attitudes and motivations can bias recall of past attitudes and events (e.g., Conway & Ross, 1984; McDonald & Hirt, 1997; McFarland & Ross, 1987; Ross, 1989).

How might people's current appraisals influence their memories for specific emotions? Based on accounts of autobiographical events, responses to vignettes, and experimental manipulations of mood, several appraisal theories have been proposed describing the types of appraisals that evoke specific emotions (see

Scherer, 1998, for a detailed review). These theories can be used to predict how specific emotions will be recalled. For example, it is widely accepted that the most important appraisal for distinguishing between emotions of positive and negative valence is goal congruency. Circumstances appraised as desirable or congruent with a person's goals or values evoke positive emotions. Circumstances appraised as undesirable or incongruent with a person's goals or values evoke negative emotions. Thus, changes in appraisals concerning whether or not circumstances were desirable should affect memory for both positive and negative emotions.

The particular positive or negative emotion evoked depends on more detailed appraisals of the relationship between the emotion-eliciting circumstances and a person's goals. For example, anger is typically evoked when another person is held to be accountable (Smith & Lazarus, 1993) or responsible (Scherer, 1984) for undesirable circumstances.[1] Thus, changes in appraisals concerning whether or not an individual was responsible for undesirable circumstances should affect memory for anger. In contrast to valenced emotions, such as happiness and anger, surprise is a valence-independent emotion that is evoked when circumstances violate people's expectations (e.g., Roseman et al., 1996; Scherer, 1984). Thus, changes in appraisals concerning whether or not an event was expected should affect memory for surprise.

If memories for emotions are reconstructed in this manner, one would not expect to find a general tendency to overestimate or underestimate the intensity of past emotions. Whether emotions are over-or underestimated should depend on how people's interpretations of the emotion-eliciting event have changed over time. Further, only changes in the types of appraisals that initially elicited a specific emotion should later influence memory for that emotion. So changes in specific types of appraisals would be expected to influence recall of some emotions and not others.

To begin to test this model, Levine (1997) assessed people's memory for the emotions evoked by a specific autobiographical event: Ross Perot's abrupt withdrawal from his United States presidential candidacy in July 1992. Perot's withdrawal was greeted with mixed feelings of sadness, anger, and hope by his supporters, many of whom had devoted personal time and effort toward the goal of getting Perot elected. Supporters were asked to describe their initial emotional reactions and appraisals after Perot's withdrawal and again after the presidential election in November 1992. Between the two assessment periods, the views of many participants changed dramatically as Perot re-entered the race and received nearly a fifth of the popular vote. Systematic changes were found in the recall of past emotions and these changes were associated with supporters' changing appraisals. For example, supporters who remained loyal to Perot

[1] For discussion of the minimum appraisal requirements necessary for the elicitation of anger in children or adults, see Berkowitz (1998); Levine (1995); Scherer (1998).

underestimated how sad and angry they had reported feeling after Perot first withdrew from the race, but overestimated initial feelings of hope that Perot could still make a difference. In contrast, those who deserted Perot's camp demonstrated stable recall of their previous feelings of anger, but underestimated feelings of hope and sadness.

These findings support the conclusion that people's memories for their past emotional responses are partially reconstructed or inferred based on their current appraisals of events. Similarly, Breckler (1994) found that people's current attitudes toward blood donation influenced their memories for how they felt when donating blood. Holmberg and Holmes (1994, study 2) found that husbands whose marriages had become less happy over time recalled early marital interactions as more negative than initially reported. The memory distortions found in Levine's (1997) study are particularly compelling because supporters' responses to Perot's withdrawal had all the elements typically associated with the creation of vivid and lasting memories: The event was surprising, associated with intense negative emotion, and viewed by Perot's supporters as being of tremendous personal and social importance. Moreover, Levine assessed memory for discrete emotional responses that had occurred at a specific point in time rather than generalised estimates of negative and positive affect.

Although these studies point to the importance of current appraisals in the reconstruction of memory for emotion, they have several limitations. First, past studies have not examined the specific types of appraisals likely to influence recall of particular emotions. Second, a great deal of research has shown that, under certain conditions, people's emotional state at the time of recall can facilitate the retrieval of emotion-congruent memories (e.g., Blaney, 1986; Bower, 1981; Mayer, McCormick, & Strong, 1995). To be certain that current appraisals influence memory for emotions, investigators should examine the influence of current discrete emotions, as well as current appraisals, on emotion recall. Third, studies of memory for intense emotions have made use of events that evoked primarily negative emotions. Asymmetries have been found, however, between the effects of positive and negative emotions on memory; for example, positive emotions are more likely to lead to mood-congruent recall (Isen, 1985; for reviews, see Isen, 1993; Blaney, 1986). Therefore, memory for both positive and negative emotions should be assessed. Finally, participants in Levine's (1997) study were a rather homogenous group, in terms of geographical location, ethnicity, and political orientation, who responded to a unique emotion-eliciting event. It is important to determine whether similar results would be found in more diverse populations and in response to other emotion-eliciting events.

The current research was designed to address these limitations. The study makes a unique contribution to research on memory for emotion by examining the relationship between changes in specific types of appraisals and memory for specific emotions. In addition, the study is the first to assess memory for

responses to a single event that evoked intense positive emotion in some individuals and intense negative emotion in others. Both the relationship between current emotions and emotion recall, and the relationship between current appraisals and emotion recall, were assessed. Finally, memory for emotions was assessed with a diverse population and a unique emotion-eliciting event.

The Present Investigation

On 3 October 1995, Mr Orenthal James (O.J.) Simpson was acquitted of the murders of his former wife, Mrs Nicole Brown Simpson, and her friend, Mr Ron Goldman. The announcement of the verdict was televised live and an estimated 150 million Americans stopped to watch. The verdict was of great interest to many Americans because it concerned a famous public figure (a former football hero), because many had followed the televised trial proceedings throughout the year, and because the trial raised issues concerning equity between races in the American criminal justice system (Mr Simpson is an African-American) and concerning spousal abuse. Mr Simpson's acquittal elicited intense positive emotion in some individuals and intense negative emotion in others.

One week after the verdict was announced, participants were asked to describe their emotional reactions and their appraisals when they first learned of the verdict. Two months after the verdict announcement, and again after more than a year, participants were asked to recall their initial emotional reactions to the verdict and to describe their current appraisals. Due to an ongoing civil trial initiated by the victims' families, Mr Simpson's innocence or guilt remained a focus of media and public attention for about eighteen months following the verdict announcement in the criminal trial. Indeed, sixteen months after the criminal jury found Mr Simpson not guilty of the murders, a civil jury unanimously found him responsible for the deaths and ordered him to pay compensatory damages. The new information released throughout the civil trial was advantageous to our investigation because it made it likely that the appraisals of some participants would change in the months following the announcement of the verdict.

Based on appraisal theories and on Levine's (1997) model, we predicted that participants' memory for their feelings of happiness, anger, and surprise would be influenced by their current appraisals. Changes in people's appraisals concerning whether the verdict was desired (i.e., goal congruency) were expected to influence their memory for how happy and angry they felt when Mr Simpson was acquitted. Changes in people's appraisals concerning whether Mr Simpson was guilty of the murders (i.e., responsible) were expected to influence people's memory for how angry they felt. Because a defendant's innocence or guilt determines whether acquittal is desirable or to be expected, however, changes in these beliefs might also be expected to influence memory for happiness and surprise (see also, Graham, Weiner, &

Zucker, 1997). In contrast to happiness and anger, surprise is a valence-independent emotion that is evoked when people's expectations are violated. Therefore, we predicted that changes in appraisals concerning whether the verdict was expected would influence memory for surprise, but not for happiness or anger. Changes in people's appraisals concerning the importance of the verdict (i.e., goal relevance) were expected to lead to changes in memory for all three emotions.

We further predicted that, rather than observing a general tendency to over- or underestimate past emotions, current appraisals would determine the direction of changes in memory for emotions. For example, people who changed their opinions and came to believe that Mr Simpson was guilty would be expected to overestimate how angry they felt when they first learned that he had been acquitted. Conversely, people who came to believe that Mr Simpson was not guilty would be expected to underestimate how angry they felt. Finally, people's current appraisals concerning Mr Simpson and the verdict were expected to have a stronger influence on emotion recall than their current emotions (see also Breckler, 1994; Holmberg & Holmes, 1994). This is because, unlike current emotions, current appraisals are directly related to the event that elicited the emotions being recalled.

A limitation that this study shares with many other studies involving highly emotional events is the need to restrict the inferences drawn to the ''stability'' of memory reports over two points in time rather than assessing the ''accuracy'' of memory for initial emotional responses. Researchers rarely have access to intense emotional reactions at the time they are occurring (e.g., Brown & Kulik, 1977; McCloskey, Wible, & Cohen, 1988; but see Linton, 1982; Neisser & Harsch, 1992). Instead, as in the current study, later memories are compared to earlier ones. Because initial reports of participants' emotional responses were obtained after a delay of one week, there is no guarantee that these early memories are distortion-free.

METHOD

Design

Questionnaires were completed by participants at two sites: The University of California, Irvine (UCI) and Lehman College, The City University of New York. All participants completed an initial questionnaire seven days after the announcement of the verdict in the criminal trial of Mr O. J. Simpson. Two months after the verdict announcement, participants at both schools completed a second questionnaire. More than a year after the verdict announcement, a third questionnaire was completed by participants at UCI only. The main measure was participants' memory for their initial emotional responses of happiness, anger, and surprise. Secondary measures included initial appraisals, current appraisals, and current emotions.

Participants

Time 1. On 10 October 1995, seven days after the verdict was announced, questionnaires were distributed to undergraduate students in psychology classes at UCI and Lehman College. These two geographically—and ethnically—diverse groups of students were included in the study in an effort to increase the variance of emotional reactions to the verdict. A total of 447 students participated. At UCI, 351 students completed the questionnaire; 30% were male and 70% were female. The ethnicities of the UCI undergraduates approximated the demographics of the campus as a whole; they were Asian (48%), Hispanic (24%), Caucasian (22%), African-American (2%), and other (4%). The UCI undergraduates ranged in age from 17 to 47 years (M = 19, SD = 2.31). At Lehman College, 96 students completed the questionnaire; 20% were male and 80% were female. The ethnicities of the Lehman college students also approximated the demographics of the campus as a whole; they were: Hispanic (52%), African American (37%), Caucasian (10%), and other (1%). These students ranged in age from 18 to 41 years (M = 22, SD = 5.00).

Time 2. 28 November 1995, two months after the verdict was announced, a second questionnaire was completed by undergraduates in the same psychology courses at UCI (N = 270) and Lehman College (N = 55). Preliminary analyses revealed no significant differences between the group of students who completed the second questionnaire and the group of students who did not, in terms of demographics, initial emotions, or initial appraisals.

Time 3. A third questionnaire was completed over a year after the verdict was announced by UCI participants only. The date of completion ranged from 12 to 16 months, with a mean of 14 months after the verdict (range = 387 to 504 days, M = 431 days, SD = 27 days). UCI students who completed the third questionnaire were recruited by phone, e-mail, posters, and announcements in classes. At UCI, 156 students completed questionnaires at both time 1 and time 3. Of those students, 124 had completed the questionnaire at time 2 as well. No significant differences were found between the UCI students who completed the third questionnaire and the UCI students who did not in terms of age, ethnicity, initial emotions, or initial appraisals. More females (79%) than males (21%) responded to the third questionnaire, however. (The gender composition of the UCI groups who completed the first and second questionnaires was 70% female and 30% male.)

To prevent anticipatory rehearsal concerning the verdict, participants were not informed that they would be questioned again about their reactions to the verdict when they completed the first two questionnaires. When participants were contacted after a year, they were asked to participate in a study concerning ''life events''. Participants received course credit for completing the first two questionnaires and five dollars for completing the third questionnaire.

Questionnaires

Time 1. The initial questionnaire assessed participants' emotional reactions when they first learned of the verdict, their appraisals concerning the verdict, and demographic information. (Additional questions were asked concerning participants' knowledge, memory, and rehearsal of events that transpired in the courtroom, but these issues will not be addressed in this paper.)

Emotions were assessed with the question: ''When you first learned of the verdict, how intensely did you feel each emotion listed below?'' Participants rated the intensity of happiness, anger, and surprise using 5-point scales ranging from 0 (*not at all*) to 4 (*extremely*).

Four questions assessed participants' appraisals concerning the verdict. Participants were asked to state their own opinion of Mr Simpson's innocence or guilt using a 7-point scale. The values of the scale were: 1 (*definitely not guilty*), 2 (*probably not guilty*), 3 (*might be not guilty*), 4 (*I have no idea*), 5 (*might be guilty*), 6 (*probably guilty*), 7 (*definitely guilty*). Participants were asked what verdict they desired (not guilty, didn't care, guilty), and what verdict they expected (not guilty, guilty, mistrial or hung jury, no expectation). Finally, participants were asked to rate the importance of the outcome of the trial on a 5-point scale ranging from 0 (*not at all*) to 4 (*extremely*).

Time 2. Two months (56 days) after the verdict announcement, participants were again asked to rate how happy, angry, and surprised they had felt when they first learned of the verdict. The four appraisal questions were also repeated: Participants were asked to indicate the verdict they had desired and the verdict they had expected. They rated their opinion of Mr Simpson's innocence or guilt, and their opinion of the importance of the outcome of the trial.

Time 3. The questionnaire administered after more than a year was identical to the questionnaire administered after 56 days, with one addition: Before participants were informed of the topic of the study, they were asked to rate their current feelings of happiness, anger, and surprise on 5-point scales ranging from 0 (*not at all*) to 4 (*extremely*).

RESULTS

Preliminary analyses indicated that, when ethnicity was included as a variable, participants from UCI and Lehman College did not differ significantly with respect to initial emotional intensity ratings, recall of emotions, or appraisals. Therefore, subsequent analyses included ethnicity as a variable but pooled subjects from the two schools.

Initial Reports of Emotional Intensity

One week after the announcement of the verdict, participants described their initial appraisals of the verdict and their emotional reactions. The mean rating for the importance of the verdict was 2.8 (SD = 1.14), with a rating of 3 representing ''very important''. Most participants indicated that they desired a verdict of guilty (44%), rather than not guilty (29%), or ''didn't care'' (27%). Most participants also indicated that they had expected a verdict of guilty (39%), rather than not guilty (26%), mistrial or hung jury (26%), or no expectations (9%). The average rating of the defendant's innocence or guilt on a 7-point scale was 4.79 (SD = 1.85), with a rating of 7 representing ''definitely guilty''. Participants rated the intensity of their emotional reactions to the verdict on scales ranging from 0 (*not at all*) to 4 (*extremely*). The mean intensity of emotion was 2.50 (SD = 1.38) for surprise, 1.16 (SD = 1.43) for happiness, and 1.36 (SD = 1.43) for anger. Thus, as a group, participants viewed the verdict as an important and surprising event.

To find out how participants' appraisals of the verdict were related to their initial emotions, separate, main effects ANOVAs were conducted on the intensity ratings for happiness, anger, and surprise.[2] The between subject variables were ethnicity, gender, and appraisals concerning: (a) the desired verdict, (b) the defendant's innocence or guilt, and (c) the expected verdict. For these analyses, the 7-point guilt appraisal scale was collapsed into three categories (not guilty, no idea, guilty); expected verdict was collapsed into three categories (not guilty, mistrial/hung jury/no expectation, guilty). The results are shown in Table 1 which lists mean intensities for happiness, anger, and surprise for each variable and significant contrasts.

As Table 1 shows, the intensities of participants' initial feelings of happiness, anger, and surprise were related to their appraisals concerning the verdict desired; Happiness: $F(2, 418) = 85.49$, $p < .0001$, Anger: $F(2, 417) = 80.87$, $p < .0001$, Surprise: $F(2, 419) = 6.17$, $p < .01$. The intensities of participants' initial feelings of happiness, anger, and surprise were also related to their appraisals concerning Mr Simpson's innocence or guilt; Happiness: $F(2, 418) = 11.09$, $p < .0001$, Anger: $F(2, 417) = 5.39$, $p < .01$, Surprise: $F(2, 419) = 4.28$, $p < .05$. For example, participants who desired a verdict of ''not guilty'', and participants who believed that Mr Simpson was not guilty, reported feeling the greatest intensity of happiness when Mr. Simpson was acquitted. Conversely, participants who desired a verdict of ''guilty'', and participants who believed that Mr Simpson was guilty, reported feeling the most angry and surprised. The intensity of surprise, but not of happiness or anger, was also related to whether the verdict

[2] Because of unequal cell sizes, general linear model (partial sums of squares) analyses were used for all analyses of variance. This was done to increase statistical precision and protect against order effects and the associated possibility of inflated Type I error rates.

TABLE 1
Means and significant contrasts for initially reported intensities of happiness, anger, and surprise by desired verdict, guilt appraisal, expected verdict, ethnicity, and gender

Variables	*Happiness*	*Anger*	*Surprise*
Desired verdict			
1. Not guilty	2.78 (1.24)	0.31 (0.76)	2.23 (1.40)
2. Didn't care	0.93 (0.99)	0.66 (0.94)	2.01 (1.44)
3. Guilty	0.24 (0.66)	2.47 (1.21)	2.97 (1.17)
Contrasts	1>2&3; 2>3	3>2&1; 2>1	3>2&1
Guilt appraisal			
1. Not guilty	2.68 (1.31)	0.27 (0.74)	2.00 (1.41)
2. No idea	1.45 (1.34)	0.61 (0.93)	2.05 (1.32)
3. Guilty	0.54 (0.97)	1.93 (1.41)	2.77 (1.30)
Contrasts	1>2&3; 2>3	3>2&1	3>2&1
Expected verdict			
1. Not guilty	1.30 (1.48)	1.14 (1.46)	1.55 (1.34)
2. Mistrial/other	1.13 (1.37)	1.27 (1.32)	2.40 (1.30)
3. Guilty	1.08 (1.42)	1.59 (1.48)	3.23 (1.02)
Contrasts	n.s.	n.s.	3>2&1; 2>1
Ethnicity			
1. African-Am.	3.00 (1.32)	0.17 (0.49)	2.41 (1.41)
2. Hispanic	1.40 (1.49)	1.26 (1.46)	2.44 (1.46)
3. Caucasian	0.74 (1.29)	2.05 (1.46)	2.53 (1.32)
4. Asian	0.74 (1.04)	1.45 (1.33)	2.61 (1.32)
5. Other	0.93 (1.32)	1.07 (1.39)	2.20 (1.57)
Contrasts	1>2–5; 2>3–5	n.s.	n.s.
Gender			
1. Male	1.04 (1.30)	1.07 (1.37)	2.28 (1.39)
2. Female	1.21 (1.47)	1.48 (1.44)	2.59 (1.36)
Contrasts	n.s.	2>1	n.s.

Note: Values in parentheses represent standard deviations. *Post-hoc* comparisons shown in the Contrasts rows were conducted using Scheffe's F with a critical value of 3.02, $p < .05$, $MSE = 0.81$ for happiness, 1.04 for anger, and 1.35 for surprise.

had been expected, $F(2, 419) = 54.32$, $p < .0001$. For example, participants who expected a verdict of ''guilty'' reported the greatest surprise; those who expected a verdict of ''not guilty'' reported the least surprise. Differences associated with ethnicity and gender were also found. African-American participants reported greater happiness than did all other ethnic groups. Hispanic participants reported greater happiness than did Caucasian or Asian participants, $F(2, 418) = 7.11$, $p < .0001$. Women reported greater anger than did men, $F(2, 417) = 5.66$, $p < .05$.

Memory for Emotional Intensity

As a general assessment of the stability of memory for emotions over time, the mean intensities of initially reported emotions were compared with the mean intensities recalled after two months. Paired comparison *t*-tests were conducted for happiness, anger, and surprise, using Bonferroni corrections (overall $p = .05$). The results showed that the intensity of happiness recalled decreased significantly between one week ($M = 1.10$, SD = 1.42) and two months ($M = 0.98$, SD = 1.36), $t(324) = 2.49$. No significant differences in recalled intensity were found after two months for anger ($M_{\text{initial}} = 1.42$, SD = 1.45; $M_{2\ \text{months}} = 1.44$, SD = 1.39), $t(324) = -0.37$, or surprise ($M_{\text{initial}} = 2.51$, SD = 1.36; $M_{2\ \text{months}} = 2.38$, SD = 1.33), $t(324) = 2.08$.

UCI participants ($N = 155$) also recalled their emotions after more than a year. Paired comparison *t*-tests, using Bonferroni corrections (overall $p = .05$), indicated that recalled intensity decreased significantly after more than a year for happiness ($M_{\text{initial}} = 0.87$, SD = 1.26; $M_{\text{year}} = 0.54$, SD = 0.96), $t(155) = 4.80$, and surprise ($M_{\text{initial}} = 2.65$, SD = 1.32; $M_{\text{year}} = 2.24$, SD = 1.31), $t(155) = 4.29$, but not for anger ($M_{\text{initial}} = 1.59$, SD = 1.39; $M_{\text{year}} = 1.59$, SD = 1.34), $t(155) = 0$.

To further assess the stability of emotional memory over time, Pearson correlations were computed between the intensity of emotions initially reported and the intensity recalled after two months. The results showed that participants recalled the intensity of their past emotions with reasonable stability: happiness, $r(324) = 0.83$, $p < .0001$; anger, $r(324) = 0.80$, $p < .0001$; surprise, $r(324) = 0.67$, $p < .0001$. After more than a year, significant but lower correlations were found between initial and recalled intensity for all three emotions: happiness, $r(155) = 0.73$, $p < .0001$, anger, $r(155) = 0.71$, $p < .0001$; and surprise, $r(155) = 0.58$, $p < .0001$. Hotelling's *t*-tests indicated that the degree of correlation between initially reported and recalled emotional intensity decreased significantly between two months and more than a year for happiness, $t_H(121) = 2.75$, $p < .01$, anger, $t_H(121) = 2.06$, $p < .05$, and surprise, $t_H(121) = 2.05$, $p < .05$.[3] Thus, the stability of participants' memory for their emotions was fairly high but decreased over time.

[3] Hotelling's *t* is a standard test for comparing nonindependent correlation coefficients. These comparisons were based on data from participants who recalled their emotions at all three time periods ($N = 124$). Correlations between initial and recalled intensity for this subset of participants were very close to those cited for the larger groups. Specifically, the degree of correlation between initial and recalled intensity after two months was 0.86 for happiness, 0.83 for anger, and 0.71 for surprise. The degree of correlation after more than a year was 0.76 for happiness, 0.77 for anger, and 0.61 for surprise (*p*s < .0001).

Relationship between appraisals and memory for emotions

The next set of analyses was conducted to determine how changes in participants' guilt appraisals were related to the stability of their memory for emotions. First, an ''appraisal change score' was calculated. Each participant's initial rating of Mr. Simpson's innocence or guilt was subtracted from his or her rating after two months; the absolute value of this difference represented the degree of change in the appraisal of guilt. The mean change in participants' guilt appraisals after two months was 0.69 (*SD* = 1.04). An ''instability score' for emotion recall was also calculated for each participant for happiness, anger, and surprise. The intensity of emotion initially reported was subtracted from the intensity recalled after two months; the absolute value of this difference represented the instability of recall. An exact match between recalled and initially-reported intensity would thus receive an instability score of 0. The greater the difference between recalled and initially-reported intensity, the greater the instability score. After two months, mean instability scores were 0.40 (*SD* = 0.70) for happiness, 0.55 (*SD* = 0.71) for anger, and 0.73 (*SD* = 0.79) for surprise.

Pearson correlations were then computed between the appraisal change score and the instability scores for happiness, anger, and surprise. The results indicated that, the greater the change in participants' guilt appraisals, the greater the instability of emotion recall for happiness, $r(321) = 0.18$, $p < .001$, and anger, $r(321) = 0.12$, $p < .05$, but not for surprise, $r(321) = 0.06$, n.s. Thus, the more participants' appraisals of Mr Simpson's innocence or guilt had changed, the less stable were their memories for how happy and angry they felt when Mr Simpson was acquitted. After more than a year, the mean change in participants' guilt appraisals was 0.79 (SD = 0.98), and the mean emotion instability scores were 0.53 (SD = 0.77) for happiness, 0.70 (SD = 0.77) for anger, and 0.84 (SD = 0.95) for surprise. After more than a year, greater change in guilt appraisals was associated with greater instability of emotion recall for happiness only, $r(154) = 0.26$, $p < .001$.

To assess the relationship between appraisals and memory for emotions in greater detail, hierarchical regression analyses were conducted. The aim of these analyses was to assess whether specific current appraisals predicted recall of specific emotions after controlling for initial emotional intensity, initial appraisals, and demographic variables. Separate analyses were conducted predicting recall of happiness, anger, and surprise after two months and after more than a year. For each analysis, predictor variables were entered in two steps: In the first step, initial emotional intensity, demographic variables, and initial appraisals were entered. In the second step, current appraisals were added to the model. Participants who recalled their emotions after more than a year also rated their current emotions. Thus, current

emotion was also added in the second step for analyses of emotion recall after more than a year.[4]

Specifically, the variables entered in the first step were: initial emotional intensity (5-point scale); gender (0 = female, 1 = male); ethnicity (0 = African-American, 1 = other);[5] initial report of the desired verdict (0 = not guilty, 1 = other); initial guilt rating (7-point scale); initial report of the expected verdict (0 = not guilty, 1 = other); initial importance rating (5-point scale). The variables added in the second step were: current emotion (5-point scale); current report of the desired verdict; current guilt rating; current report of the expected verdict; current importance rating.

Table 2 summarises the results of the regression analyses predicting memory for happiness after two months and after more than a year. After two months, greater intensity of recalled happiness was significantly predicted by greater intensity of initial happiness, and by initial appraisals that the defendant was probably not guilty. After controlling for these variables, greater recalled happiness was predicted by current appraisals that a verdict of ''not guilty'' was desired, and by current appraisals that the defendant was probably not guilty. After a year, greater recalled happiness was predicted by greater initial happiness, by initial appraisals that a verdict of ''not guilty'' was desired, by current feelings of happiness, and by current appraisals that a verdict of ''not guilty'' was desired. Thus, current appraisals concerning the verdict desired and the defendant's innocence or guilt predicted recalled happiness after controlling for other variables.

Table 3 summarises the results of the regression analyses predicting memory for anger after two months and after more than a year. In both analyses, greater recalled anger was predicted by greater initial anger and by initial appraisals that the defendant was probably guilty. After controlling for these variables, greater recalled anger was predicted by current appraisals that the defendant was probably guilty. In addition, greater recalled anger after a year was predicted by female gender.

[4] Regression analyses predicting emotion recall after a year were also conducted including the variable ''delay''. Delay referred to the number of days between the announcement of the verdict and completion of the one year follow-up questionnaire. Delay did not predict recall of any emotion and was not included in subsequent analyses.

[5] Ethnicity was dichotomised as African-American vs. other ethnic groups because analyses of participants' initial emotional responses indicated that African-Americans were significantly happier than any other ethnic group when Mr Simpson was acquitted. Hispanic participants also reported feeling happier than Asian and Caucasian participants (who did not differ significantly from each other). Therefore, regression analyses were also conducted with ethnicity dichotomised as African-American and Hispanic vs. Caucasian, Asian, and other. Ethnicity did not predict emotion recall in any analysis.

TABLE 2
Summary of hierarchical regression analyses for variables predicting recall of happiness after two months and after a year

	Two months			*One year*		
Variables	*B*	*SE B*	β	*B*	*SE B*	β
Step 1						
Initial happiness	.65	.05	.67****	.53	.06	.71****
Gender	−.05	.09	−.02	.16	.13	.07
Ethnicity	−.23	.20	−.04	−.28	.39	−.04
Initial desired verdict	−.17	.15	−.05	.23	.18	.10
Initial guilt appraisal	−.11	.03	−.15**	−.08	.05	−.13
Initial expected verdict	.09	.10	.03	−.16	.12	−.07
Initial importance	.06	.04	.05	.06	.05	.07
Step 2						
Initial happiness	.59	.05	.61****	.46	.06	.61****
Gender	−.04	.09	−.01	.10	.12	.04
Ethnicity	−.17	.20	−.03	−.02	.36	−.00
Initial desired verdict	.08	.16	.03	.41	.18	.17*
Initial guilt appraisal	−.02	.04	−.03	−.01	.05	−.02
Initial expected verdict	.10	.11	.03	−.03	.12	−.01
Initial importance	.06	.04	.05	.03	.05	.03
Current emotion[a]	–	–	–	.12	.05	.12*
Current desired verdict	−.38	.16	−.12*	−.88	.21	−.31****
Current guilt appraisal	−.14	.04	−.19***	−.08	.05	−.10
Current expected verdict	−.01	.11	−.00	−.22	.12	−.10
Current importance	.02	.04	.02	.04	.05	.05

Note: [a] Current emotion was assessed only after one year. Two months model: $N = 310$; $R^2 = .70$ for Step 1; $\Delta_R{}^2 = .02$ for Step 2 ($ps < .05$). One year model: $N = 152$; $R^2 = .57$ for Step 1; $\Delta_R{}^2 = .09$ for Step 2 ($ps < .05$).

* $p < .05$; ** $p < .01$; *** $p < .001$; **** $p < .0001$.

Table 4 summarises the results of the regression analyses predicting memory for surprise. After two months, greater recalled surprise was predicted by greater initial surprise and by initial appraisals that the verdict was not expected. Once demographic variables, initial intensity, and initial appraisals were entered into the model, greater recalled surprise was predicted by gender, by initial and current appraisals that the defendant was probably guilty, and by current appraisals that the verdict was not expected. After more than a year, greater recalled surprise was predicted by greater initial surprise and by current appraisals that the verdict was not expected.

In summary, memory for all three emotions was significantly predicted by initially reported emotional intensity. Current appraisals also influenced memory for all three emotions: As predicted, memory for happiness, anger, and

TABLE 3
Summary of hierarchical regression analyses for variables predicting recall of anger after two months and after a year

	Two months			*One year*		
Variables	*B*	*SE B*	β	*B*	*SE B*	β
Step 1						
Initial anger	.68	.04	.70****	.58	.07	.60****
Gender	−.11	.11	−.04	−.44	.18	−.14*
Ethnicity	.18	.22	.03	.49	.55	.05
Initial desired verdict	.03	.15	.01	.04	.23	−.01
Initial guilt appraisal	.10	.04	.13**	.16	.07	.18*
Initial expected verdict	−.10	.11	−.03	.31	.17	.10
Initial importance	.05	.05	.04	−.06	.07	−.05
Step 2						
Initial anger	.63	.04	.64****	.57	.07	.59****
Gender	−.11	.10	−.04	−.41	.18	−.13*
Ethnicity	.13	.21	.02	.50	.54	.05
Initial desired verdict	−.20	.17	−.06	−.02	.24	−.01
Initial guilt appraisal	−.01	.04	−.01	.04	.08	.04
Initial expected verdict	−.10	.12	−.03	.16	.18	.05
Initial importance	.02	.05	.02	−.10	.08	−.09
Current emotion[a]	–	–	–	.03	.08	.02
Current desired verdict	.23	.17	.07	−.22	.30	−.06
Current guilt appraisal	.19	.04	.25****	.30	.08	.28***
Current expected verdict	.05	.12	.02	.23	.18	.07
Current importance	.08	.04	.07	−.01	.07	−.01

Note: [a]Current emotion was assessed only after one year. Two months model: $N = 310$; $R^2 = .66$ for Step 1; $\Delta_R{}^2 = .04$ for Step 2 ($ps < .05$). One year model: $N = 152$; $R^2 = .56$ for Step 1; $\Delta_R{}^2 = .05$ for Step 2 ($ps < .05$).

* $p < .05$; ** $p < .01$; *** $p < .001$; **** $p < .0001$.

surprise was influenced by current appraisals concerning the defendant's innocence or guilt. Memory for happiness was influenced by current appraisals concerning whether the verdict was desired. Memory for surprise was influenced by current appraisals concerning whether the verdict was expected. In addition, participants' current emotional state influenced their memory for happiness, but not for anger or surprise. In contrast to predictions, current appraisals concerning the verdict desired did not predict memory for anger when current guilt appraisals were included in the model. Current importance ratings did not predict memory for any emotion. One explanation for this latter finding is that the importance ratings may not have adequately assessed the relevance of the verdict announcement to participants' goals. More specific appraisal questions concerning goal relevance may be necessary.

TABLE 4
Summary of hierarchical regression analyses for variables predicting recall of surprise after two months and after a year

	Two months			*One year*		
Variables	*B*	*SE B*	β	*B*	*SE B*	β
Step 1						
Initial surprise	.64	.04	.65****	.52	.08	.52****
Gender	−.21	.12	−.07	−.18	.22	−.06
Ethnicity	−.45	.25	−.08	.60	.65	.06
Initial desired verdict	.07	.17	.02	.08	.27	.02
Initial guilt appraisal	−.07	.04	−.10	−.07	.07	−.08
Initial expected verdict	.36	.13	.12**	.35	.23	.12
Initial importance	.07	.05	.06	.12	.08	.10
Step 2						
Initial surprise	.56	.05	.57****	.48	.08	.48****
Gender	−.25	.11	−.09*	−.28	.21	−.09
Ethnicity	−.37	.24	−.07	.68	.64	.07
Initial desired verdict	.11	.19	.04	.05	.28	.02
Initial guilt appraisal	−.14	.05	−.18**	−.02	.09	−.02
Initial expected verdict	.09	.14	.03	.13	.23	.04
Initial importance	.07	.05	.06	.09	.09	.08
Current emotion[a]	–	–	–	.30	.17	.12
Current desired verdict	−.35	.19	−.11	−.43	.36	−.11
Current guilt appraisal	.14	.05	.19**	.06	.10	.06
Current expected verdict	.76	.14	.25****	.73	.22	.24***
Current importance	.01	.05	.01	.01	.09	.01

Note: [a] Current emotion was assessed only after one year. Two months model: $N = 310$; $R^2 = .51$ for Step 1; $\Delta_R{}^2 = .06$ for Step 2 ($ps < .05$). One year model: $N = 152$; $R^2 = .37$ for Step 1; $\Delta_R{}^2 = .07$ for Step 2 ($ps < .05$).

* $p < .05$; ** $p < .01$; *** $p < .001$; **** $p < .0001$.

Overestimates and underestimates of emotional intensity

Although several researchers have found that people tend to overestimate the intensity of past negative emotions (Breckler, 1994; Devito & Kubis, 1983; Keuler & Safer, 1998; Schrader et al., 1990; Zimmerman & Coryell, 1986; but see Levine, 1997; Levine & Bluck, 1997), we predicted that current appraisals would determine whether emotions were over- or underestimated relative to initial reports. To test this prediction, the complete regression models described above were used to estimate values for recalled emotional intensity at selected levels of the current appraisal variables. The resulting estimates of recalled intensity thus controlled for demographic variables, initial emotional intensity, initial appraisals, current emotions, and other current appraisals. Estimated

values were then compared with initially reported emotional intensity to determine whether particular groups of participants showed stable recall of their emotions (i.e., estimated recalled intensity was equal to initially reported intensity), underestimated (i.e., estimated recalled intensity was less than initially reported intensity), or overestimated (i.e., estimated recalled intensity was greater than initially reported intensity).

Recalled emotional intensity was estimated for the three current appraisal variables that significantly predicted emotion recall: desired verdict, guilt appraisal, and expected verdict. Because desired verdict and expected verdict were dummy-coded in the regression analyses, estimates were made for the levels of 0 (not guilty) and 1(other). The values selected for estimation on the 7-point guilt appraisal scale were 3 (might be not guilty) and 7 (definitely guilty) because these values fell ± 1 standard deviation from the mean guilt rating of 4.79 (SD = 1.85).

Table 5 shows mean estimates for recalled emotional intensity at selected levels of the current appraisal variables. The means of interest (indicated with asterisks) are those for which current appraisal variables significantly predicted emotion recall in regression analyses (see Tables 2, 3, and 4). Table 5 also shows mean initially reported intensities for happiness, anger and surprise. Comparing

TABLE 5
Mean initial emotional intensity and mean estimates for recalled emotional intensity at selected levels of current appraisal variables

		Estimates for recalled emotional intensity					
		Desired verdict		*Guilt appraisal*		*Expected verdict*	
Emotion	*Initial intensity*	*Not guilty*	*Other*	*Not guilty*	*Guilty*[a]	*Not guilty*	*Other*
Two months							
Happiness	1.10	2.53	0.51*	2.18	0.16*	0.89	0.97
Anger	1.42	0.40	1.77	0.48	2.73*	1.42	1.49
Surprise	2.51	2.37	2.38	2.47	2.56*	1.25	2.78*
One year							
Happiness	0.87	2.16	0.30*	1.31	0.21	0.68	0.48
Anger	1.59	0.42	1.77	0.55	2.50*	1.49	1.64
Surprise	2.65	2.37	2.21	1.81	2.63	1.30	2.53*

Notes: [a]The specific values selected for estimation on the guilt appraisal scale were 3 (might be not guilty) and 7 (definitely not guilty) which fell ± 1 SD from participants' mean guilt rating. Recalled intensity was estimated using regression models that included demographic variables, initial emotional intensity, initial appraisals, current emotion after a year, and current appraisal variables. Asterisks indicate that memory for the emotion was significantly predicted by the current appraisal variable in regression analyses (see Tables 2, 3, and 4). For analyses after two months, $N = 324$; for analyses after a year, $N = 155$.

the two sets of means demonstrates that participants' current appraisals predicted whether they under-or overestimated their past emotions. For example, for participants who recalled their emotions after two months, the mean rating for initially reported happiness was 1.10. Relative to their initial ratings, those who currently reported a desired verdict of ''not guilty'' overestimated how happy they had felt when Mr Simpson was acquitted ($M = 2.53$), whereas those who currently reported another desired verdict underestimated how happy they had felt ($M = 0.51$). Relative to their initial reports of anger ($M = 1.42$), participants who currently reported that Mr Simpson ''might be not guilty'' underestimated how angry they had felt ($M = 0.40$), whereas participants who currently reported that Mr Simpson was ''definitely guilty'' overestimated how angry they had felt ($M = 2.73$). Relative to their initial reports of surprise ($M = 2.51$), participants who currently reported that they expected the verdict of ''not guilty'' underestimated how surprised they had felt ($M = 1.25$), whereas participants who currently reported other expectations overestimated how surprised they had felt ($M = 2.78$). The same pattern of over-and underestimation was found for recall of emotions after more than a year. The single exception was that participants who expected a verdict other than ''not guilty'' slightly underestimated their initial feelings of surprise.

DISCUSSION

This research demonstrates that memory for past emotions changes over time and that the changes are systematically related to current appraisals of the emotion-eliciting event. A week after the announcement of the verdict in the criminal trial of Mr O.J. Simpson, participants described their emotional reactions and their appraisals when they first learned of the verdict. After a delay of two months, and again after more than a year, participants recalled their initial emotional reactions and described their current appraisals of the verdict. As predicted by cognitive appraisal theories of emotion, (e.g., Frijda, 1987; Smith & Lazarus, 1993; Oatley & Johnson-Laird, 1987; Roseman et al., 1991; Scherer, 1984; Stein & Levine, 1987; Weiner, 1985), people's initially reported emotional responses to Mr Simpson's acquittal depended on how they appraised the event. Those who desired the verdict of ''not guilty'', and those who believed that Mr Simpson was innocent, reported feeling primarily happy when he was acquitted. Those who desired conviction, and those who believed that Mr Simpson was guilty, reported feeling primarily angry and surprised when he was acquitted. The intensity of surprise, but not of happiness or anger, also depended upon whether or not the verdict had been expected.

The stability of participants' memory for their feelings of happiness, anger, and surprise was fairly high after a delay of two months, though it decreased significantly after a delay of more than a year. Greater levels of instability have been found when people have been asked to recall mild emotional responses to

routine events or to generalise about the intensity of positive or negative affect across discrete emotions or over a span of time (e.g., Brewer, 1988; Hedges et al., 1985; Thomas & Diener, 1990). These design features yield important information about memory for day-to-day emotional experience, but they also may lead to errors in recall. Participants might correctly remember how they felt in the past but attribute their emotions to the wrong period of time (Bradburn, Huttenlocher, & Hedges, 1994; Brewer, 1988), or they might make errors in generalising across discrete emotional states. The greater stability of emotional memories found in this study may have been due to the fact that participants recalled discrete emotional responses to a significant event that occurred at a specific point in time.

Even under these conditions, however, changes in memory for emotions were found and these changes were related to participants' current appraisals. After two months, the more participants' appraisals of Mr Simpson's innocence or guilt had changed, the less stable were their memories for how happy and angry they had felt when he was acquitted. Regression analyses showed that, after two months and after more than a year, current appraisals concerning Mr Simpson's innocence or guilt predicted memory for the intensity of happiness, anger, and surprise. Current appraisals concerning whether the verdict was desired predicted memory for happiness. In contrast, current appraisals concerning whether the verdict was expected predicted memory for surprise, but not for happiness or anger. The specificity of these effects is important for two reasons. First, it shows that the findings cannot be explained in terms of participants' response biases. That is, it was not the case that people who gave inconsistent accounts of their appraisals over time also gave inconsistent accounts of their emotions. Rather, specific types of current appraisals (e.g., expectations) were associated with changes in memory for specific emotions (e.g., surprise), but were not associated with changes in memory for other emotions. Second, it suggests that only those appraisals hypothesised to initially lead to the elicitation of an emotion are accessed when reconstructing memory for the emotion after a delay.

A number of previous studies have shown that people tend to overestimate the intensity of past negative emotions (Breckler, 1994; Devito & Kubis, 1983; Keuler & Safer, 1998; Schrader et al., 1990; Zimmerman & Coryell, 1986). In the present study, no general tendency was found to either overestimate or underestimate past emotions. Instead, the direction of memory change varied systematically depending on people's current appraisals of the emotion-eliciting event. For example, participants who currently reported a desired verdict of ''not guilty'' overestimated how happy they had felt when Mr Simpson was acquitted. Participants who currently reported another desired verdict underestimated how happy they had felt. Current appraisals concerning Mr Simpson's innocence or guilt predicted whether anger was over-or underestimated. Current appraisals concerning whether or not the verdict was expected predicted whether surprise was over- or underestimated. In short, emotions that were consistent with current

appraisals tended to be overestimated relative to initial reports; emotions inconsistent with current appraisals tended to be underestimated (see also Levine, 1997).

These findings suggest the processes by which reconstruction of emotional memories may take place. When gaps exist in people's memory for their past emotions, people may infer how they must have felt by simulating their initial emotional reaction. This simulation appears to consist of a repetition of the appraisal process that initially elicited the emotion. For example, to recall past feelings of surprise, an individual might ask (consciously or unconsciously), ''Just how unexpected was this event?'' To the extent that the individual's appraisals have changed, the emotional experience recalled differs from that which was initially experienced. Future studies might further clarify the processes by which emotional memories are reconstructed by including more detailed assessments of people's appraisals of emotion-eliciting events, based on specific, and perhaps contrasting, appraisal theories. The use of confidence ratings in future studies also would be useful for assessing whether the reappraisal process is conscious or whether people are unaware that their memories for past emotions are partially reconstructed.

An alternative interpretation of these findings should also be noted. Because the findings are based on correlational data, the possibility cannot be entirely ruled out that people's current appraisals of the verdict were themselves partly influenced by the emotions they remembered experiencing. It seems likely, however, that more recent factors, such as new information released by the media and recent discussions with others, had a greater influence on current appraisals than did memory for past emotions. Indeed, the fact that most people's opinions shifted in the direction of greater guilt suggests that press reports concerning the proceedings of the civil trial (in which Simpson was ultimately held liable for the deaths) strongly influenced people's appraisals concerning the verdict in the earlier criminal trial.

Factors other than current appraisals of the emotion-eliciting event also influence memory for emotion. For example, retrospective estimates of affective intensity have been found to be biased by peak and final intensity levels (Fredrickson & Kahneman, 1993; Parkinson et al., 1995), by the frequency of affective experiences (Thomas & Diener, 1990) and by people's beliefs about their personality traits (Barrett, 1997; Cutler, Larsen, & Bunce, 1996; Keuler & Safer, 1998). Another potential source of bias is people's emotional state at the time of recall (e.g., Bower, 1981; Mayer et al., 1995). In the current study, after a delay of more than a year, memories for anger and surprise were unrelated to current feelings of anger and surprise, but memory for happiness was biased in the direction of current feelings of happiness. These findings are consistent with previous research showing more reliable mood-congruent effects for positive than for negative emotions (Isen, 1985; for reviews see Isen, 1993; Blaney, 1986). On the whole, however, the con-

gruence or incongruence of current appraisals played a more central role than current emotions in shaping the extent to which specific emotions were recalled. The lack of a relation between current emotions and recall of anger or surprise suggests that memories for emotions are influenced by more complex processes than that of a simple associative network in which activation from current feelings primes congruent feelings from the past (Levine & Burgess, 1997).

In conjunction with Levine's (1997) findings, these findings indicate that current appraisals predict emotion recall, regardless of whether the emotion-eliciting event is a reported event with few direct consequences for the observers (as in the Simpson verdict), or directly affects the activities and goals of the participants (as Perot's withdrawal did for his supporters). Moreover, memory for intense positive emotion was subject to the same reconstructive influences as memory for intense negative emotions. The generality of these findings suggests that diagnostic and experimental tests based on self reports of past emotions, and testimony concerning the emotional impact of past events, should be interpreted with caution, particularly when the reports follow major changes in people's goals and beliefs.

The primary function of memory, however, may be as a guide to future behaviour rather than as an exact record of the past. Recalling past emotions lets people know whether to seek out similar situations in the future or avoid them (Breckler, 1994; Hendersen, 1985; Levine, 1997; Robinson, 1996). Because they are not indelible, memories for past emotions may serve as a superior guide to future behaviour by summarising the relevance of past events to a person's current goals and beliefs.

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