Sources of Bias in Memory for Emotions
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Abstract

How accurately can people remember how they felt in the past? Although some investigators hold that emotional memories are resistant to change, we review evidence that current emotions, appraisals, and coping efforts, as well as personality traits, are all associated with bias in recalling past emotions. Bias occurs as memories of emotional states are updated in light of subsequent experience and goals. Biased memories in turn influence future plans and emotions, and may contribute to the formation of enduring personality traits. People’s memories for emotions provide highly condensed and accessible summaries of the relevance of past experiences to current goals.

Keywords
memory; recall; emotion; affect; bias

Most research on emotional memories focuses on how accurately people remember the events that elicited emotions. In this article, we ask a different question: How accurately can people remember their own past emotions? Clinicians routinely ask individuals to rate the intensity and frequency with which they have 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 such self-reports. In nonclinical settings, memories for emotions inform people’s current actions and future plans. Remembering emotions may alleviate the need to store detailed information about the past, while still enabling rapid decisions based on that information. For example, one may retain “gut feelings” that guide decisions to seek out or avoid a person or situation, without remembering the specific details that led to those feelings. Thus, it is important to determine how people recall their emotions, and what factors might be associated with the accuracy or distortion of these memories over time.
Some investigators have claimed that, although memory for events is subject to fading and distortion over time, memory for one’s emotional reactions to events is long-lasting, vivid, and easily retrieved (LeDoux, 1996). Others have argued, however, that if memory for emotions provides a map guiding behavior, it is important for the map to be capable of being updated, incorporating new information and experience. Thus, some inaccuracy may be not only inevitable, but also adaptive (Levine, 1997). In the past decade, a number of investigators have assessed the accuracy of emotion recall directly by asking people to describe their emotions at one time and recall them at a later time. We review this research in order to clarify when, how, and why distortion in memory for emotions may occur.

**POSTEVENT EMOTIONS AND APPRAISALS**

Overall, recent research indicates that people remember their emotions fairly accurately. In most studies, the intensity of emotion recalled is highly correlated with the intensity initially reported ($r = .50$ or higher). Relative accuracy across individuals, however, does not guarantee fidelity of recall for any one individual, and indeed, both overestimation and underestimation may occur.

One predictor of how people will recall past emotions is their current emotional state. For example, when widows and widowers rated the intensity of their grief 6 months and then 5 years following the death of their spouse, they reported much more intense current grief at 6 months than at 5 years. However, when asked after 5 years to recall how they had felt 6 months after the death of their spouse, the intensity of grief participants remembered was more highly correlated with their current level of grief than with the actual grief reported at 6 months (Safer, Bonanno, & Field, 2001).

People’s current interpretations, or appraisals, of past experiences also influence how they remember their emotions. For example, researchers assessed people’s memory for how they felt when they first learned that O.J. Simpson had been acquitted of murder charges (Levine, Prohaska, Burgess, Rice, & Laulhere, 2001). One week, 2 months, and 14 months after the verdict was announced, participants were asked to recall the intensity of their emotions when they first learned of the verdict. They also described their current appraisals of Simpson and the verdict, for example, by rating how sure they were of Simpson’s innocence or guilt. The results showed that the more participants’ appraisals of Simpson’s guilt had changed over time, the less stable were their memories for how happy and for how angry they had felt when Simpson was acquitted. In addition, their specific current appraisals predicted the direction of memory distortion for specific emotions. Thus, after 2 months, participants who currently thought Simpson was guilty overestimated their feelings of anger and underestimated their feelings of happiness relative to their initial reports. Those who currently viewed the verdict as unexpected overestimated their initial feelings of surprise.

Because these data are correlational, one cannot be certain that changes in appraisals actually caused changes in memory for emotions. Therefore, we (Safer, Levine, & Drapalski, in press) conducted an experimental study that assessed college students’ memory for how anxious they felt before a midterm exam. Students were randomly assigned to two groups. Students in one group were informed of their exam grade before they recalled their preexam emotions; students in the other group were not told their grade. In comparison with the uninformed group, students who learned that they had done well on the exam underestimated their preexam anxiety, and students who learned that they had done poorly overestimated their preexam anxiety. Thus, postevent information about their grades led to immediate distortion in students’ memory for their feelings of anxiety.

These findings indicate that, although memories for emotions are fairly accurate, they are also subject to systematic biases. These biases are most likely to be observed when marked changes have occurred in people’s emotions, goals, and beliefs. Under these conditions, people appear to use their current feelings about and appraisals of past experiences to infer how they must have felt when these experiences first took place. It has long been acknowledged that memory for non-emotional information is partially reconstructed on the basis of postevent information, attitudes, and appraisals (Lofthus, 1992; Ross, 1989). It is now clear that these variables influence memory for emotions as well. Thus, memory for emotions is partially reconstructed on the basis of current feelings about, and appraisals of, past emotion-eliciting events.

**COPING IN THE PRESENT BY RECONSTRUCTING THE PAST**

People do not always remember past emotions as consistent with current emotions and appraisals. Indeed, when remembering ongoing challenging situations, people may exaggerate differences be-
tween their past and present emotions, so as to perceive improvement. For wives, marriage may represent such a situation. In a longitudinal study, Karney and Coombs (2000) found that wives’ self-reported satisfaction with their marriages tended to decline linearly across 20 years of marriage. The more wives overestimated their past marital dissatisfaction at 10 years, the higher their levels of marital satisfaction at 20 years. Thus, perceiving that their satisfaction had improved, when in fact it had declined, predicted greater subsequent satisfaction.

Victims of trauma often report increased wisdom or insight following their experiences. McFarland and Alvaro (2000) found that victims perceive “personal growth,” not by idealizing their present attributes, which may be hard to justify in the face of reality, but by denigrating their pretrauma attributes. Thus, the growth is in part illusory, based on misremembering the past as being worse than it was. Similar illusory biases occur in memory for distress. In one study (Safer & Keuler, 2002), individuals who were terminating psychotherapy were asked to recall their emotional distress just prior to their first session of psychotherapy. Approximately two thirds of the clients overestimated their pre-therapy distress, thereby apparently perceiving a greater positive change with therapy than was warranted. Clients who failed to improve with therapy were particularly likely to exaggerate their pre-therapy distress. In contrast, clients who improved the most underestimated their past distress. Good current functioning was associated with the retrospective reappraisal that past negative experiences were “not so bad.”

Thus, different patterns of bias appear to characterize memory for successfully completed versus ongoing emotional experiences. People who have coped successfully with an emotional experience tend to recall their past emotions as consistent with their current emotions and appraisals. In contrast, people who are still actively coping with an emotional experience tend to exaggerate their past distress. These findings demonstrate the need for caution in treating individuals’ self-reports of their past emotional distress as accurate records. For example, the well-publicized Consumer Reports survey of satisfaction with psychotherapy (discussed in Seligman, 1995) relied heavily on people’s long-term retrospective reports of their emotional state at the beginning and end of therapy, without considering how subsequent experiences, emotions, and appraisals might affect recall. Prior distress may be forgotten or reinterpreted more benignly by individuals who are no longer experiencing distress but exaggerated in the service of coping by those who remain distressed.

PERSONALITY

Researchers have also found individual differences in how people remember emotions. Cutler, Larsen, and Bune (1996) had participants rate their moods twice daily for 4 weeks. Those who scored high on a measure of the personality trait of anxiety reported more negative affect than those who scored low, and at the end of the study, they recalled having felt even worse than the average of their reports. Similarly, Feldman Barrett (1997) found that participants who scored high on neuroticism overestimated the average intensity of their previously recorded negative emotional states. Among clients terminating psychotherapy, people who scored high on measures of negative traits such as neuroticism tended to overestimate their pre-therapy emotional distress; those with high scores on positive traits such as ego strength tended to underestimate their pre-therapy distress (Safer & Keuler, 2002). Thus, enduring personality traits, as well as current emotions and appraisals, are associated with bias in memory for emotions.

These sources of bias may not be independent of each other. Personality may influence memory for emotion via emotions and appraisals. In our study of students’ memory for their preexam anxiety (Safer et al., in press), we found that the more neurotic students were, the more anxious they felt before the exam; in turn, the more anxious they felt, the more they overestimated later when recalling their preexam negative emotions. Thus, the effects of personality on memory distortion were mediated by emotional states. Moreover, misremembering emotions had important consequences for future plans and emotional experiences. The more students overestimated their test anxiety, the more they planned to study more for the final exam, and the more unpleasantness they reported feeling just before the final exam.

Such findings suggest that the relationship between individual differences in emotional states and distortion in memory for emotions may be bidirectional and self-perpetuating. For example, people who report high levels of neuroticism are likely to overestimate in recalling the intensity of their negative emotions and underestimate in recalling the intensity of their positive emotions. In turn, generalizing from this autobiographical memory database, they may come to describe themselves in such a way that they score high on measures of neuroticism. Thus, memories of emotions may play a vital role in the construction of personal identity. Personality affects how people
remember emotions, and how they remember emotions reveals, and perhaps even creates, personality. Further research should more directly investigate this cyclical relationship among distortion in memory for emotions, self-concept, and future affective experiences, as well as methods to break a vicious cycle when it moves in a progressively more negative direction.

CONCLUSIONS AND FUTURE DIRECTIONS

In summary, recent research demonstrates that biases in memory for emotion occur as a function of current emotions, appraisals, and coping efforts, as well as personality. Such biases have been found for both positive and negative emotions, for everyday emotional experiences, and for intense emotions associated with surprising and personally consequential events. 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 an individual’s report follows major changes in his or her goals and beliefs.

Although we have used the terms “bias” and “distortion” to describe memories for emotions, future research should examine further the adaptive functions that these reconstructions may serve. The primary function of memory for emotion may be to guide goal-directed action rather than to serve as an indelible record of the past. It may therefore be useful for these emotional summaries to be updated on the basis of current experience. Another issue for further research is the extent to which implicit, unconscious memory for emotion is subject to reconstructive biases. We have reviewed studies that assessed explicit memory for emotion, but implicit memory for emotion may also be biased in the direction of recent experience (Levine, 1997).

Finally, research on memory for emotion may help to explain how individuals predict their future emotions. People typically overestimate when asked to predict the duration or intensity of their emotional responses to future events, such as not receiving tenure or the victory of a favorite sports team (Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998). Future emotions are overestimated in part because people fail to appreciate how postevent emotions, appraisals, and coping efforts will influence how they feel. Thus, failing to adjust for postevent experience leads to inaccuracies in both retrospective and prospective judgments of emotion. Research has demonstrated personality differences in how people recall their emotions, and future research may find personality differences in prospective judgments of emotion as well. Research on how people represent past and future emotions can contribute greatly to understanding individual differences in experience.

As Bartlett (1932) noted, “the past is continually being re-made, reconstructed in the interests of the present” (p. 309). Our review demonstrates that this ongoing reconstruction may be especially important in remembering one’s own emotions.

REFERENCES


Note

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