

The Fading Affect Bias: But What the Hell Is It For?

W. RICHARD WALKER^{1*} and JOHN J. SKOWRONSKI²

¹*Department of Behavioral Sciences and Social Work, Winston-Salem State University,
Winston-Salem, NC, USA*

²*Department of Psychology, Northern Illinois University, DeKalb, IL, USA*

SUMMARY

This article reviews research examining the fading affect bias (FAB): The finding that the intensity of affect associated with negative autobiographical memories fades faster than affect associated with positive autobiographical memories. The FAB is a robust effect in autobiographical memory that has been replicated using a variety of methods and populations. The FAB is linked to both cognitive and social processes that support a positive view of the self. Accordingly, we speculate that one function of the FAB may be to induce individuals to be positive and action-oriented so that they may better face and master life challenges. Copyright © 2009 John Wiley & Sons, Ltd.

Baddeley (1988) challenged researchers in memory and cognition to explain any given phenomenon by answering a simple question: What the hell is for? The present article poses this question in relation to the fading affect bias (FAB). The FAB shows that the emotion associated with negative event memories generally fades faster than the emotion associated with positive event memories. This phenomenon has been well documented in several studies over the years, receiving the most intense scrutiny in the last decade.

To better understand the possible functions of the FAB, this article will first review some of the classic perspectives on memory and emotion. Next, the article will provide a review of some the relevant research documenting this phenomenon, including research that describes factors that both strengthen and weaken the FAB. Finally, this article will consider the adaptive value of changes in the emotions that accompany autobiographical memories.

Our quest begins with the simple observation that life events prompt emotions. Watching a child develop often brings joy; the death of a child often brings sadness. Completion of a manuscript might bring satisfaction; a collaborator who fails to deliver a manuscript on time might prompt annoyance. A health threat to a loved one might prompt fear; the resolution of that threat might prompt relief.

The recollection of an autobiographical memory can also trigger emotions. Sometimes, as in recalling the death of a child, those emotions can be quite painful. At other times, as in recalling the child's first spoken words, the emotions can be quite uplifting. The emotions prompted by event memories, however, are not always the same as the emotions prompted by the events themselves. In some cases, an event that prompted a negative emotion when

*Correspondence to: W. Richard Walker, Department of Behavioral Sciences and Social Work, Winston-Salem State University, Winston-Salem, NC 27110, USA. E-mail: walkerr@wssu.edu

the event occurred may come to prompt a positive emotion at recall. For example, imagine a scholar who was denied tenure in her first job. Her original reaction to the event may have been distress. However, when she now recalls the event, she now experiences relief. This may occur when, from the perspective of her new job, she recognizes the stresses that she was subject to in her original department and how much more hospitable her new department is compared to the old one. Emotion change across time can also occur in the opposite direction. A woman who was being courted might have been thrilled at the time she received a marriage proposal. However, now that she is married and has met someone she sees as her 'soul mate', the woman may now feel considerable regret when recalling the marriage proposal episode.

While such changes in the kind of emotion experienced from event occurrence to event recall can and do occur (and indeed, have been the focus of recent research – see Hartnett & Skowronski, 2008), research shows that the more usual alteration in the emotions accompanying event memory is that such emotions are of the same kind as the original event, but they fade in intensity across time. The intense anger that might have accompanied a betrayal by a friend when the event occurred might provoke a milder response when the events leading to the betrayal are recalled months or years later. The intense joy that might have accompanied striking a goal that won the city soccer championship might provoke a milder sense of happiness when later examining photos of the event in old newspaper clippings.

There are a number of psychological mechanisms that may be involved in how emotions change across time. As noted above in the example of the scholar who was denied tenure, one mechanism could involve private reflection that prompts a re-appraisal of the original event in the light of new life circumstances (for a similar idea, see Levine & Bluck, 2004). Another mechanism might reflect social interaction. For example, sharing a negative, embarrassing experience with friends may help a person to eventually relish telling the story because of the laughter that the story provokes. Yet another mechanism might reflect the current status of the personal emotional system. For example, the emergence of depression may work to amplify negative aspects of an event that would have otherwise faded.

One concern expressed by Neisser (1982) about scientific progress in psychology is that relatively little attention is sometimes paid to issues that are significant to people in their daily lives. Certainly, that has been the case with respect to studies that describe how emotions related to events change across time and the mechanisms underlying such change. One exception has occurred in the domain of psychopathology. One focus of psychopathology research has been an attempt to understand the emergence of psychopathology in the light of the emotions accompanying life event memories (e.g. Freud's, 1915/1957, concept of repression posited that event memories were forgotten while their accompanying emotions remained intact). Another focus has reflected ideas about how the negativity of distressing, or even traumatic, events can be dissipated (e.g. via journaling about one's negative memories – see Chung & Pennebaker, 2008).

While a focus on negative events and psychopathology can provide insights into treatment, exclusive focus on negative life events can lead to a distorted view of the link between autobiographical memory and emotions, to the reasons why emotions change across time, and to the ultimate function that emotional fading might serve. This suggests the utility of examining both the positive and the mundane, as well as the extreme and the negative, in pursuit of knowledge about the emotions associated with autobiographical recall and how and why those emotions can change across time. We, and other researchers,

have taken just that approach (e.g. see Kensinger, 2009; Levine & Bluck, 2004; Levine, Safer, & Lench, 2006; Skowronski, Walker, & Edlund, 2006). Such a research has addressed a wide range of autobiographical memories, the emotions they prompt, how those emotions change and the mechanisms that prompt such change.

Hypotheses derived from two perspectives would suggest that the emotions accompanying negative events should be especially persistent across time. One of these perspectives is derived from Freud (1937/1964), who in describing his idea of repression, suggested that people should be especially likely to forget the substance of threatening events. Given controversies surrounding 'repressed memories' of sexual abuse in the last two decades, we wish to be clear about our use of the term 'repression'. Our use of that term in this article should not be viewed as part of the debate about whether 'repressed memory recovery' reflects retrieval of real memories or reflects fabrications of false memories (e.g. Loftus, Joslyn, & Polage, 1998; McNally, 2004). Instead, our use of this term refers to the theoretical idea that for repression to occur, the *threatening emotions* associated with the event must be retained across time in order to prompt the mental processes that dampen memory for the event. While this idea has often been attributed to Freud, it has been noted that this is an extension of the Freudian view and not necessarily a direct statement of that view (see Erdelyi, 2006).

The second perspective speaks more directly to the relative fates of positive and negative emotions in human memory. Based on their review of results across several literatures, Baumeister, Bratslavsky, Finkenauer, and Vohs (2001) have offered the sweeping conclusion that 'bad is stronger than good.' According to this view, negative emotions, information and events of all kinds have a greater and longer lasting impact on individuals than do positive emotions, information and events. Accordingly, this view predicts that the intensity of the emotions accompanying negative events should persist longer than the intensity of the emotions accompanying positive events. One rationale underlying this prediction is the idea that negative emotions contain more information useful for long-term survival than do positive emotions.

While these two perspectives suggest that negative emotion should persist in memory longer than positive emotion, the empirical data have not supported that prediction (e.g. Walker, Vogl, & Thompson, 1997). Results from that research suggested that across time, it was positive event-prompted emotions, and not negative event-prompted emotions, that were particularly likely to persist. Although now known to be moderated by a number of variables, this initial result has held up quite well across time and across methods of inquiry (for a recent replication, see Ritchie, Skowronski, Hartnett, Wells, & Walker, 2009).

Given these two prominent perspectives regarding the strength of negative emotions, the FAB was initially thought of as a counter-intuitive finding. However, in the light of continuing research on the FAB and the growing interest in human adaptation and resilience (e.g. Fredrickson, 2001), the finding can now be seen in another light. This emerges when one considers autobiographical memory to serve an important function as part of an emotion-regulating self-system that is oriented towards: (a) promoting a positive view of the self; (b) promoting an optimistic view of the world; (c) strengthening peoples' connections with others and (d) helping people prepare for actions in the future (Conway & Pleydell-Pearce, 2000). These points will be elaborated in the latter portion of the present article. To set the stage for this argument, however, the next task will be to review findings from our laboratories that describe the FAB, some of the moderators of that bias, and some of the mediators of that bias.

THE FADING AFFECT BIAS

Definition

The affect prompted by autobiographical event recall typically decreases in intensity as time from the original event increases. However, the extent to which the intensity fades is not equivalent for positive events and for negative events. Instead, the intensity of the emotions felt at event recall (compared to those felt at event occurrence) tends to fade faster for negative events than for positive events. It is this differential fading of affect over time that is referred to as the FAB (see Walker, Skowronski, & Thompson, 2003). The net result of the FAB is the relative preservation of positive emotions over negative emotions in autobiographical memory.

Early evidence

Although concentrated interest in this bias has emerged only recently, Cason (1932) provided the first report of it. Cason used a retrospective recall procedure in which people recalled past events and rated, at the time of recall, how much emotion had been prompted at event occurrence and how much emotion was prompted at event recall. Cason's data suggested that positive event-prompted emotions maintained more of their intensity across time than did negative event-prompted emotions.

One criticism of studies that assess emotion retrospectively is that they can be subject to retrospective biases in the recall of emotion (Safer, Levine, & Drapalski, 2002; also see Levine et al., 2006). Indeed, such retrospective biases have been observed in FAB studies (Ritchie et al., 2009). However, such biases do not account for the FAB: Several non-retrospective recall studies have yielded results that support the existence of the FAB. The first of these was reported by Holmes (1970). Holmes asked 26 participants to record events in a diary and to indicate the intensity of the emotion prompted by the event. After 1 week, participants recalled the events and rated the intensity of the emotion prompted by each memory recalled. Holmes found that negative event-prompted emotions faded more across time than did positive event-prompted emotions.

Recent research on the FAB

The 'modern era' of FAB research was ushered in by the initial publication of Walker et al. (1997). These researchers used a diary method, thereby avoiding retrospective bias. Participants in the three studies reported by Walker et al. kept a diary of unique events and provided pleasantness ratings for each event at the time it occurred. The diaries were collected each week during the recording portion of the studies (3.5 months in Study 1, 2.5 years in Study 2, 10 months in Study 3). At the end of the recording period, participants came to the laboratory where they responded to questions about the events listed in their diaries. Participants were asked to make many of the same ratings at test that they had made at the time the event occurred, including a current pleasantness rating. Participants used a 7-point scale ranging from -3 (*Extremely Unpleasant*) to $+3$ (*Extremely Pleasant*), with 0 being *Neutral*.¹

¹One of the methodological concerns that might be raised is whether the bipolar rating scales used in these studies might inadvertently bias the results, perhaps creating an illusion of change where none exists. We have employed several different rating methods, including bipolar scales (with 7, 11 and 21 points), unipolar scales that independently assess positive and negative emotions and manipulations involve having participants provide verbal descriptions of their initial and pleasant affect. All of the methodologies have resulted in a consistent set of findings.

Thirty-eight participants (Study 1) were tested after a 3.5-month retention interval; six participants (Study 2) were tested after a 1-year retention interval; and one participant (Study 3) was tested after a 4.5-year retention interval. Events were classified as pleasant or unpleasant based upon the valence of the initial pleasantness ratings provided by participants. Changes in affect were assessed by comparing the pleasantness ratings provided by participants at the time that the event was recorded to ratings provided at test. For instance, if an event was initially rated as Extremely Unpleasant (-3) but rated at test as Mildly Unpleasant (-1), the difference score would be 2. Fading of affect was most typical, but a small number of event memories *increased* in emotional intensity or switched valences (e.g. the event was initially rated as Unpleasant but later rated as Pleasant; for a more thorough discussion of the different types of emotional changes, see Ritchie et al., 2009).

Figure 1 presents the mean drop in the intensity of the affect reported for pleasant and unpleasant events across the three retention intervals. The data depicted in Figure 1 show two trends. First, longer retention intervals led to greater affective fading. Second, the affect associated with unpleasant events faded more rapidly than the affect associated with pleasant events. These data are typical of the emergence of the FAB in the emotions that accompany autobiographical recall.

These studies built on the Holmes studies, but for two reasons, allowed greater generalizability. First, these studies used substantially larger samples of events and people than were collected and used in the Holmes study. Second, these studies explored the fading of affect over retention intervals that were substantially longer than 1 week.

One other important element of the Walker et al. data is the finding that the FAB does not simply reflect forgetting. That is, given that people may tend to preferentially recall positive autobiographical events (see Skowronski, Betz, Thompson, & Shannon, 1991; a tendency that may become stronger with age – see Mather, 2006), one might wonder if the FAB is due to better memory for positive events than for negative events. Speaking to this question, participants in the Walker et al. studies were asked to rate how well they remembered the events recorded in their diaries. The data from Walker et al. reflected a normal pattern of forgetting for events, but also showed that participants remembered the positive and negative events with almost equal clarity. Thus, while the emotions associated with positive and negative events faded differentially, the memory for the events themselves did not.

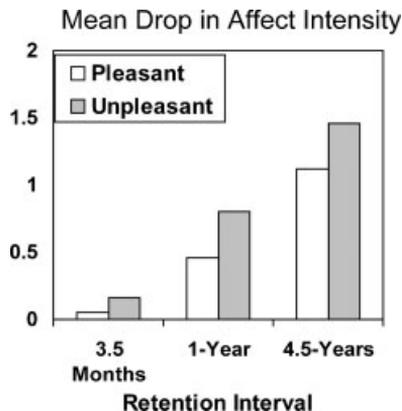


Figure 1. The mean drop in affect intensity on a 0–3 scale for pleasant and unpleasant events for three retention intervals (3.5 months, $N = 43$; 1 year, $N = 6$ and 4.5 years, $N = 1$) (Walker et al., 1997)

Considerable progress has been made in the practice of mediational analysis since the Walker et al. (1997) paper appeared; that article has been one of the few to address the role of memory in the FAB (but see Levine & Bluck, 2004). Accordingly, there remains the possibility that the qualities of event memories (e.g. accessibility), as well as the clarity of the memories themselves, might be related to the FAB. Indeed, a potential linkage between memory quality and experienced emotion at recall was the hypothesis that spurred Holmes' (1970) exploration of the issue. Certainly, the need for future research to empirically examine whether the FAB is linked to memory quality is justified by the paucity of studies that have explored the issue – to our knowledge, only the Holmes (1970) and Walker et al. (1997) papers have done so. Nonetheless, the data from both of these studies currently lead to the conclusion that any linkage that exists between emotion and memory is insufficient to fully explain the FAB.

Replicating and extending the FAB: Generalizability across samples and methods

As research exploring the FAB has progressed, it has become increasingly evident that it is not a method-bound or sample-bound effect. Walker et al. (1997) used a diary method and a sample of Caucasian undergraduate students at a traditional American university. Bohn and Berntsen (2007) studied flashbulb memories for the fall of the Berlin Wall in East and West Germans and found results consistent with the FAB. Ritchie et al. (2009) replicated the FAB using a retrospective procedure and a sample of British University students, and showed that the FAB was not related to the activation level of the emotion prompted by the original event; instead, the FAB emerged across a variety of specific positive emotions and negative emotions. The Walker laboratory has replicated the FAB using a retrospective memory procedure in which the memories were solicited via cued recall instead of the free recall procedure employed by other studies. The studies from the Walker lab also often use samples largely comprising African-Americans (e.g. Brunson, Wheeler, & Walker, 2009; Walker, Skowronski, Gibbons, et al., 2003). Ferguson (2003) replicated the FAB using a diary methodology employed by a sample of Native-American adults. Ritchie and Skowronski (2008) found the FAB using a diary procedure with a sample of British students in which dreams were the events recorded in the diaries and later rated so that the extent to which dreams showed the FAB pattern could be determined. In summary, although the FAB can be moderated, or even reversed (see below), the FAB seems to be a relatively ubiquitous pattern that tends to emerge across emotions, types of people and research methods.

BEYOND THE FAB: VARIETIES OF AFFECTIVE CHANGE IN AUTOBIOGRAPHICAL MEMORY

The original conception of the FAB focused on the fading of affect, literally defined as the decrease in emotion from event occurrence to event recall (the *bias* being the finding that positive and negative emotions faded differentially). However, close examination of data from some studies, especially those that employed bipolar response scales to obtain the affect ratings, revealed some anomalies. These were events that did not simply fade, but exhibited emotions of one valence at occurrence, and an emotion of an opposite valence at recall. The original response to these anomalies was to worry about whether they had an adverse analytic impact when assessing fading. Accordingly, there was

debate about whether the change scores produced by such events should be truncated, or whether they should be discarded prior to data analysis. The results of analyses of the FAB data were so robust that this decision really did not matter to the pattern of findings.

The systematic study of this anomaly has now become a point of interest. Data reported by Ritchie et al. (2009) reflecting responses to over 1200 autobiographical events recalled over 1 year have been analysed identifying four possible patterns of change that could characterize participant responses. First, the affect associated with an event may not change at all: An event that was initially positive or negative may retain its emotional intensity across time. Ritchie et al. referred to this outcome as *Fixed Affect*. Second, the affect associated with an event may diminish in its emotional intensity. Such fading is consistent with the original conception of the FAB, and was subsequently termed *Fading Affect*. Third, the affect associated with an event may become more emotionally intense over time. That is, an event that was initially only mildly positive or negative may become more intense when the event is later recalled. This might occur once the consequences of the event are fully realized. Ritchie et al. referred to this outcome as *Flourishing Affect*. Fourth, the affect associated with an event may reverse in its emotional valence, moving from being perceived as negative to being perceived as positive, or vice versa. Ritchie et al. referred to this outcome as *Flexible Affect*.

Ignoring event valence, it is clear that Fading Affect (47% of all events) is more prevalent than Fixed Affect (37%), Flourishing Affect (12%) and Flexible Affect (4%). However, Ritchie et al. (2009) examined the relative frequency of the four types of affective changes as they differentially applied to positive events and negative events. The results indicate that the four types of affective changes do not occur equally across event valence types. When an event is positive, Fixed Affect (49% of all positive events) is more prevalent than Fading Affect (37%), Flourishing Affect (12%) and Flexible Affect (1%). However, when an event is negative, Fading Affect (51% of all negative events) is more prevalent than Fixed Affect (38%), Flourishing Affect (10%) and Flexible Affect (6%).

Two points can be taken from these data. First, whether affect fades substantially after 1 year depends upon the valence of the initial affect: Positive events are likely to retain affect intensity while negative events are likely to decrease in affect intensity. Second, there seems to be two complimentary elements that may help to explain the FAB. In the first, when events fade but maintain their valence from occurrence to recall, the intensity of positive emotions tends to fade less than the intensity of emotions associated with negative events. A second element revolves around affect switching: Negative events are much more likely to reflect Flexible Affect than are positive events.

An examination of the nature of these events suggests that at least some of this change in affect reflects re-evaluation of events in the light of current life circumstances, a point anticipated by Levine and Bluck (2004). Such effects suggest that one variable that must be accounted for when trying to understand the emotions prompted by event recall is the process that people use to appraise events at the time of the event and at the time of recall (see Ross, McFarland, & Fletcher, 2008). Such construals do not end with the occurrence of the event, but instead might persist through life as an individual attempts to make sense of his or her 'life story' (Bluck & Habermas, 2001; McLean, Pasupathi, & Pals, 2007; Wilson & Ross, 2000). To the extent that individuals' appraisals tend to emphasize the positive in the self and to minimize the negative (e.g. Greenwald, 1980), the FAB should serve the long-term goal of maintaining or increasing positive self-regard.

WHAT THE HELL IS THE FADING AFFECT BIAS FOR?

One might speculate that the FAB is related to an individual's attempt to construct a meaningful and adaptive life narrative. Such a narrative likely includes a reasonably accurate record of positive and negative life events that emphasize a positive sense of self, an array of event memories that can be recollected without stressing the systems that support autobiographical memory, and the framing of negative events as transformative experiences. This speculation makes sense in terms of current theorizing about the self. For example, a positive self is seen as essential to an individual's optimal functioning in a social world (Sedikides, Skowronski, & Gaertner, 2004). Thus, one can argue that positivity in emotional responses to remembered autobiographical events helps to maintain the positivity of the self.

This does not mean that the content of autobiographical memory is limited to positive events. For many negative events, the initial emotional intensity fades for a very simple reason: Maintaining an intense negative emotion places an unnecessary burden on cognitive, affective and biological systems (Taylor, 1991). The dissipation of negative emotion is likely related to several mechanisms. For example, a subset of intensely negative experiences might lose affective intensity at recall after gradually being reinterpreted as transformative moments. Such an idea is consistent with results provided by Bauer, McAdams, and Pals (2008), who identified patterns in life narratives that emphasize happiness, well-being and personal growth. Many of these narratives included experiences of hardship that were later construed as redemptive or liberating (i.e. a part of the cultural script of success achieved through suffering).

SOCIAL REHEARSAL AS A MODERATOR OF THE FAB

These kinds of reflections about the purpose of the FAB prompted speculation about some of the variables that might moderate the FAB effect. Accordingly, some studies focused on the descriptive characteristics of events, or of psychological reactions to events, that moderated the FAB. For example, data from Ritchie, Skowronski, Wood, Walker, Vogl, and Gibbons (2006) showed that self-importance, the extent which people feel that events are psychologically open, and the perception of self-causation tend to work towards shrinking the magnitude of the FAB; event atypicality tended to work towards enhancing the magnitude of the FAB.

However, one of the especially important themes that has been pursued in recent research concerns the extent to which conveying events to others might be related to the FAB. Several ideas pointed in this direction. The first was the recognition that the mental work that was involved in conveying events to others can be important to an individual's later cognitions about those events (Higgins, 1992). Such cognitions can ultimately be constrained by the roles that individuals play when conveying information to others. In this regard, Skowronski and Walker (2004) argued that socially sharing event memories with others could have distinct effects on the subsequent recall of those memories and on the emotions accompanying those memories. They argued that socially conveying autobiographical events often requires that the informant follow a carefully scripted set of conversational norms and that adherence to such norms may ultimately work to minimize the negative elements of events and to enhance the positive elements of events. In

addition, listeners' reactions to the shared memories may serve to increase or decrease the emotional content of later re-tellings.

One important element of social support mechanisms is that these processes may apply to positive emotional responses to events as well as to negative emotional responses to events. For example, in Skowronski, Gibbons, Vogl, and Walker (2004), participants were asked to recall four emotional memories and to provide ratings of initial affect and current affect. Two of these events (one positive and one negative) were to be events that they had shared infrequently with others (5 times or less) while the other two events (one positive and one negative) were to be events that they had shared frequently with others (10 times or more). The results indicate a much stronger FAB for events that had been frequently disclosed to others. In a second study, participants recalled six event memories were queried about to whom they had disclosed the events. Participants were given a list of 15 category types of potential listeners and asked to circle those categories containing people with whom they had shared the particular event memory. These responses were used to parse events into two categories: Events that had been shared with many different kinds of listeners (high audience diversity) or few different kinds of listeners (low audience diversity). The results mirrored the findings of Study 2: Events with high audience diversity showed a stronger FAB than events with low audience diversity. The results of Study 2, which attempted to control for rehearsal frequency, suggest that it is not merely the repetition of event memory that strengthens the FAB, but that the target audience also influences the affect associated with shared memories. Moreover, important to both of these studies was the suggestion that social disclosure can work *both* to support the maintenance of positive affect and to dissipate negative affect.

An obvious limitation to these two studies is that they show that there is an association between disclosure and the FAB; they do not show that there is a causal link. Causality was demonstrated in a third study. In that study, participants were asked to recall six event memories, to provide the initial emotion and current emotion ratings and to provide event descriptions to the experimenter. The experimenter then randomized the events for each participant and placed each event into one of three rehearsal conditions. In a study that resembled the set-up used during speed dating encounters, participants were asked to relate a subset of the events with other participants in the study 0 times, 2 times or 3 times. Participants then made additional ratings for the event memories. The results of the laboratory study, depicted in Figure 2, are clear: Increased social rehearsal frequency led to

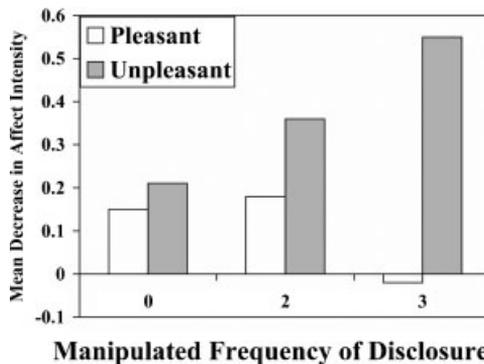


Figure 2. The mean drop in affect intensity for pleasant and unpleasant events that were rehearsed 0, 2 and 3 times in a controlled laboratory setting (Skowronski et al., 2004)

a stronger FAB. Moreover, as demonstrated by the earlier studies, this overall effect was evident in *both* positive emotions and negative emotions: Talking about pleasant events maintained or even increased their positive intensity, while talking about negative events increasingly dampened the intensity of the associated negative emotions. Collectively, then, the results from all three studies suggest that social disclosure is one mechanism that can work to amplify the FAB.

INDIVIDUAL DIFFERENCES AND THE FAB

The fading affect bias is disrupted in those experiencing dysphoria

We have argued that one function of the FAB is to maintain the positivity of the self-concept. If so, the FAB should be disrupted in those experiencing depressed affect. Moreover, the literature provides ample evidence that the memories of those who are depressed differ from the memories of those who are non-depressed. For example, dysphorics' memories are often less detailed than non-dysphorics' (e.g. Williams & Broadbent, 1986; Williams & Scott, 1988), and more negative (e.g. Clark & Teasdale, 1982; Lloyd & Lishman, 1975; Seidlitz, Wyer, & Diener, 1997).

Such data led Walker, Skowronski, Gibbons, Vogl, and Thompson (2003) to investigate the relation of dysphoria to the FAB. In one study, participants recalled six emotional event memories from the most recent 6 months of their lives and rated the pleasantness or unpleasantness of each event at the time of the event and when the event was recalled. Participants also completed the Beck Depression Inventory (BDI; Beck & Steer, 1987) and using results from the BDI, were classified as dysphoric (19 participants) or non-dysphoric (46 participants). Results showed that non-dysphorics exhibited a robust FAB while dysphorics did not. For dysphorics, unpleasant emotions and pleasant emotions faded at the same rate. A second experiment replicated and extended these findings using a much larger sample size ($N = 337$), and a more detailed analysis of dysphoria. The results of the study are depicted in Figure 3. Those in the two highest BDI score groupings (i.e. those who

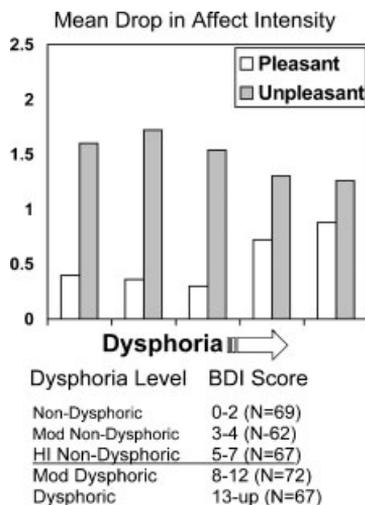


Figure 3. The mean drop in affect intensity for pleasant and unpleasant events for participants classified in five levels of dysphoria by scores on the BDI (Walker, Skowronski, Gibbons, et al., 2003)

scores indicated that they were experiencing dysphoria) exhibited a breakdown in the FAB. For them, negative emotions faded less and positive emotions faded more than for their non-dysphoric counterparts. In comparison, the FAB robustly emerged in non-dysphoric participants.

The mechanism(s) underlying this individual difference have yet to be established. One mechanism may lie in dysphorics' inability to frequently discuss negative life events. Another may relate to an inability to frame negative events in a transformational way. Yet another might be caused by an inability of dysphorics to appropriately savor life's successes (Bryant & Veroff, 2007). These considerations highlight the need for additional studies to explore some of the social and mental mechanisms that might underlie the FAB.

The fading affect bias is associated with a hopeful outlook

As we have noted, one of the mechanisms that may underlie the FAB is motivational: The need to enhance the self. In keeping with this line of reasoning, one might speculate that the FAB may not only serve as a tool for understanding the past, but may also help to provide a psychologically stable platform from which people can manage the present and look towards the future.

This idea is consistent with the literature on emotion regulation (see Ochsner & Gross, 2005). Indeed, Mather (2006) has already noted some of the ways in which attempts at emotion regulation might be evident in the autobiographical memory system. Consistent with this view, results from a number of studies indicate that people tend to selectively forget personally negative autobiographical events (see Skowronski et al., 1991) and to underestimate the intensity of past negative emotions prompted by those events and to overestimate the intensity of positive events. For example, as people get older, they rate their childhood as happier (Field, 1981). Indeed, Mather (2006) notes that the strength of such positivity biases in memory may generally get stronger with both time and age. For example, in one study in which participants recalled positive, negative and neutral autobiographical memories, older adults were more likely than younger adults to reappraise negative events in ways that made the events seem more positive (Comblain, D'Argembeau, & Van der Linden, 2005). We speculate that attempts to regulate emotions might similarly prompt the emotions accompanying positive events to be maintained across time and the emotions accompanying negative events to be dampened.

Fredrickson's (2001) Broaden-and-Build theory of positive emotion provides another theoretical rationale for the emergence of an FAB in memory. She suggests that positive emotions 'broaden a person's thought action repertoire' and 'build a person's personal resources'. When Fredrickson (2001) refers to broadening a person's thought action repertoire, she is referring to the well-established finding that positive emotions elicit approach and exploration behaviours (Cacioppo, Gardner, & Berntson, 1999; Davidson, 1993). Positive emotions promote flexible thought patterns, creativity, increased attention and a tendency to seek out diverse experiences (Basso, Schefft, Ris, & Dember, 1996; Isen, 1990). In other words, maintaining a generally steady and positive emotional state helps a person effectively cope with new experiences and effectively navigate the social world (see Fredrickson, 1998). This idea is strengthened by the observation that many forms of psychopathology revolve around failures to adaptively regulate emotional responses, with consequences ranging from personal distress to socially maladaptive and self-destructive behaviours. Hence, the ability to regulate emotions, and in particular, to dissipate negativity, may be a crucial task.

The FAB fits neatly into this conception: Retaining the affect associated with positive events can help to create and maintain the positive emotional state that helps prepare a person for new experiences. In comparison, maintaining the affect associated with negative events for prolonged periods of time can serve as a distraction and would leave a person unprepared for, or unmotivated to face, upcoming events.

Wheeler, Brunson, and Walker (2009) took the initial steps towards examining the idea that the FAB may be associated with a hopeful outlook towards life. Participants in their study completed the Zimbardo Time Perspective Inventory (Zimbardo & Boyd, 1999). This is a 56-item survey in which people are asked to read a series of statements related to how they think about time and to rate how well each statement describes them. Participant responses were used to classify them as Past-Oriented ($N = 19$), Present Oriented ($N = 12$) or Future-Oriented ($N = 39$). Participants were then asked to recall six event memories and to provide a series of ratings for each event, including ratings of initial event pleasantness and current event pleasantness. The results of this study showed that a participant's time perspective was strongly related to the emergence of the FAB: Present-oriented and future-oriented participants showed a significantly stronger FAB than participants who were past-oriented. Whether an individual's time perspective causally influences the FAB remains an open question. However, these data demonstrate a relation that is difficult to view as spurious: They suggest that how people think about their autobiographical memories is meaningfully linked to how they perceive the present and the future.

THE FAB: AN ADAPTIVE REAPPRAISAL

Emotions are time-sensitive details of autobiographical memories that can be re-experienced, resolved or reinterpreted depending upon the social-cognitive forces in a person's environment. The FAB refers to the finding that the negative emotions associated with event memories fade faster than the positive emotions associated with event memories. When memories are shared with others, the social rehearsal tends to strengthen the FAB. When a person is suffering from a malady such as dysphoria or depression, the FAB is weakened or non-existent. Emerging data examining the FAB fits neatly into an emerging story in which people's mental processes work over time to maintain a generally positive sense of self that is capable of overcoming adversity and looking towards the future with a sense of hope and anticipation. Accordingly, we suggest that the FAB may be a consequence of social, cognitive and motivational processes that help to regulate emotions, that help to maintain a positive self-conception and that allow retention of a hopeful outlook about the future. To answer Alan Baddeley: That's 'what the hell it's for'.

ACKNOWLEDGEMENTS

We would like to thank Jeffrey A. Gibbons, Timothy D. Ritchie and Rodney J. Vogl for their active participation in this ongoing research line.

REFERENCES

- Baddeley, A. D. (1988). But what the hell is it for? In M. M. Gruneberg, P. E. Morris, & R. N. Sykes (Eds.), *Practical aspects of memory: Current research and issues: Vol. 1: Memory in everyday life* (pp. 3–18). Chichester, England: Wiley.

- Basso, M. R., Schefft, B. K., Ris, M. D., & Dember, W. N. (1996). Mood and global-local visual processing. *Journal of the International Neuropsychological Society*, 2, 249–255.
- Bauer, J. J., McAdams, D. P., & Pals, J. L. (2008). Narrative identity and eudaimonic well-being. *Journal of Happiness Studies*, 9, 81–104.
- Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of General Psychology*, 4, 323–370.
- Beck, A. T., & Steer, R. A. (1987). *Beck depression inventory manual*. New York: Harcourt Brace Jovanovich.
- Bluck, S., & Habermas, T. (2001). Extending the study of autobiographical memory: Thinking back about life across the lifespan. *Review of General Psychology*, 5, 135–147.
- Bohn, A., & Berntsen, D. (2007). Pleasantness bias in flashbulb memories: Positive and negative flashbulb memories of the fall of the Berlin wall. *Memory & Cognition*, 35, 565–577.
- Brunson, C. A., Wheeler, D., & Walker, W. R. (2009). Testing two alternative explanations for a fading affect bias in autobiographical memory (unpublished manuscript).
- Bryant, F. B., & Veroff, J. (2007). *Savoring: A new model of positive experience*. Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.
- Cacioppo, J. T., Gardner, W. L., & Berntsen, G. G. (1999). The affect system has parallel and integrative processing components: Form follows function. *Journal of Personality and Social Psychology*, 76, 839–855.
- Cason, H. (1932). The learning and retention of pleasant and unpleasant activities. *Archives of Psychology*, 134, 1–96.
- Chung, C. K., & Pennebaker, J. W. (2008). Variations in the spacing of expressive writing sessions. *British Journal of Health Psychology*, 13, 15–21.
- Clark, D. A., & Teasdale, J. D. (1982). Diurnal variations in clinical depression and accessibility of memories of positive and negative experiences. *Journal of Abnormal Psychology*, 91, 87–95.
- Comblain, C., D'Argembeau, A., & Van der Linden, M. (2005). Phenomenal characteristics of autobiographical memories for emotional and neutral events in older and younger adults. *Experimental Aging Research*, 31, 173–189.
- Conway, M. A., & Pleydell-Pearce, C. W. (2000). The construction of autobiographical memories in the self memory system. *Psychological Review*, 107, 261–288.
- Davidson, R. J. (1993). The neuropsychology of emotion and affective style. In M. Lewis, & J. Haviland (Eds.), *Handbook of emotions* (pp. 143–154). New York: Guilford Press.
- Erdelyi, M. H. (2006). The unified theory of repression. *Behavioral and Brain Sciences*, 29, 499–551.
- Ferguson, G. V. (2003). An examination of the fading affect bias in native Americans. Paper presented at the Fourth Annual Mid-South Psychology Conference, Jackson, TN.
- Field, D. (1981). Retrospective reports by healthy intelligent elderly people of personal events of their adult lives. *International Journal of Behavioral Development*, 4, 77–97.
- Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology*, 2, 300–319.
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology. *American Psychologist*, 56, 218–226.
- Freud, S. (1915/1957). Repression. In J. Strachey (Ed. & Trans.), *The standard edition of the complete psychological works of Sigmund Freud* (Vol. 14, pp. 143–158). London: Hogarth Press.
- Freud, S. (1937/1964). Constructions in analysis. In J. Strachey (Ed. & Trans.), *The standard edition of the complete psychological works of Sigmund Freud* (Vol. 23, pp. 255–269). London: Hogarth Press.
- Greenwald, A. G. (1980). The totalitarian ego: Fabrication and revision of personal history. *American Psychologist*, 35, 603–618.
- Hartnett, J. L., & Skowronski, J. J. (2008). Tragic to hilarious: Why do some negative autobiographical memories become funny? Presented at the 80th Annual Meeting of the Midwestern Psychological Association, Chicago, IL, May 2008.
- Higgins, E. T. (1992). Achieving 'shared reality' in the communication game: A social action that creates meaning. *Journal of Language and Social Psychology*, 11, 107–131.
- Holmes, D. S. (1970). Differential change in affective intensity and the forgetting of unpleasant personal experiences. *Journal of Personality and Social Psychology*, 3, 234–239.

- Isen, A. M. (1990). The influence of positive and negative affect on cognitive organization: Some implications for development. In N. Stein, B. Leventhal, & J. Trabasso (Eds.), *Psychological and biological approaches to emotion* (pp. 75–94). Hillsdale NJ: Lawrence Erlbaum Associates, Inc.
- Kensinger, E. A. (2009). *Emotional memory across the adult lifespan*. New York: Psychology Press.
- Levine, L. J., & Bluck, S. (2004). How emotions fade: Valence, appraisals, and the emotional impact of remembered events. In S. P. Shohov (Ed.), *Advances in psychology research* (Vol. 30, pp. 3–20). Hauppauge, NY, US: Nova Science Publishers.
- Levine, L. J., Safer, M. A., & Lench, H. C. (2006). Remembering and misremembering emotions. In L. J. Sanna, & E. C. Chang (Eds.), *Judgments over time: The interplay of thoughts, feelings, and behaviors* (pp. 271–290). New York, NY: Oxford University Press.
- Loftus, E., Joslyn, S., & Polage, D. (1998). Repression: A mistaken impression? *Development and Psychopathology*, 10, 781–792.
- Lloyd, G. G., & Lishman, W. A. (1975). Effects of depression on the speed of recall of pleasant and unpleasant experiences. *Psychological Medicine*, 5, 173–180.
- Mather, M. (2006). Why memories may become more positive as people age. In B. Uttil, N. Ohta, & A. Siegenthal (Eds.), *Memory and emotion: Interdisciplinary perspectives* (pp. 135–158). Malden, MA: Blackwell Publishing.
- McLean, K. C., Pasupathi, M., & Pals, J. L. (2007). Selves creating stories creating selves: A process model of self-development. *Personality and Social Psychology Review*, 11, 262–278.
- McNally, R. J. (2004). The science and folklore of traumatic amnesia. *Clinical Psychology: Science and Practice*, 11, 29–33.
- Neisser, U. (1982). Memory: What are the important questions? In U. Neisser (Ed.), *Memory observed: Remembering in natural contexts* (pp. 1–20). San Francisco: W.H. Freeman.
- Ochsner, K. N., & Gross, J. J. (2005). The cognitive control of emotion. *Trends in Cognitive Science*, 9, 242–249.
- Ritchie, T. D., & Skowronski, J. J. (2008). Perceived change in the affect associated with dreams: The fading affect bias and its moderators. *Dreaming*, 18, 27–43.
- Ritchie, T., Skowronski, J. J., Hartnett, J., Wells, B., & Walker, W. R. (2009). The fading affect bias in the context of emotion activation level, mood, and personal theories of emotion change. *Memory*, 17, 428–444.
- Ritchie, T. D., Skowronski, J. J., Wood, S. E., Walker, W. R., Vogl, R. J., & Gibbons, J. A. (2006). Event self-importance, event rehearsal, and the fading affect bias in autobiographical memory. *Self and Identity*, 5, 172–195.
- Ross, M., McFarland, C., & Fletcher, G. J. O. (2008). The effect of attitude on the recall of personal histories. In R. H. Fazio, & R. E. Petty (Eds.), *Attitudes: Their structure, function, and consequences* (pp. 347–355). New York, NY, US: Psychology Press.
- Safer, M. A., Levine, L. J., & Drapalski, A. L. (2002). Distortion in memory for emotions: The contributions of personality and post-event knowledge. *Personality and Social Psychology Bulletin*, 28, 1495–1507.
- Sedikides, C., Skowronski, J. J., & Gaertner, L. (2004). Self-enhancement and self-protection motivation: From the laboratory to an evolutionary context. *Journal of Cultural and Evolutionary Psychology*, 2, 61–79.
- Seidlitz, L., Wyer, R. S., & Diener, E. (1997). Cognitive correlates of subjective well-being: The processing of valenced life events by happy and unhappy persons. *Journal of Research in Personality*, 31, 240–256.
- 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.
- Skowronski, J. J., Gibbons, J. A., Vogl, R. J., & Walker, W. R. (2004). The effects of social disclosure on the affective intensity provoked by autobiographical memories. *Self and Identity*, 3, 285–309.
- Skowronski, J. J., & Walker, W. R. (2004). How describing autobiographical events transforms autobiographical memory. *Social Cognition*, 22, 555–590.
- Skowronski, J. J., Walker, W. R., & Edlund, J. E. (2006). How do you feel about it now and when did it happen? Judgments of emotion and judgments of time in autobiographical memory. In L. J. Sanna, & E. Chang (Eds.), *Judgments over time: The interplay of thoughts, feelings, and behaviors* (pp. 251–270). New York, NY: Oxford University Press.

- Taylor, S. E. (1991). Asymmetrical effects of positive and negative events: The mobilization-minimization hypothesis. *Psychological Bulletin*, *110*, 67–85.
- Walker, W. R., Skowronski, J. J., Gibbons, J. A., Vogl, R. J., & Thompson, C. P. (2003). On the emotions that accompany autobiographical memories: Dysphoria disrupts the fading affect bias. *Cognition and Emotion*, *17*, 703–724.
- Walker, W. R., Skowronski, J. J., & Thompson, C. P. (2003). Life is pleasant and memory helps to keep it that way. *Review of General Psychology*, *7*, 203–210.
- Walker, W. R., Vogl, R. J., & Thompson, C. P. (1997). Autobiographical memory: Unpleasantness fades faster than pleasantness over time. *Applied Cognitive Psychology*, *11*, 399–413.
- Wheeler, D., Brunson, C., & Walker, W. R. (2009). Individual differences in time perspective predict differences in the fading affect bias. Presented at the 81st Annual Meeting of the Midwestern Psychological Association, Chicago, IL, May 2009.
- Williams, J. M. G., & Broadbent, K. (1986). Autobiographical memory in attempted suicide patients. *Journal of Abnormal Psychology*, *95*, 144–149.
- Williams, J. M. G., & Scott, J. (1988). Autobiographical memory in depression. *Psychological Medicine*, *18*, 689–695.
- Wilson, A. E., & Ross, M. (2000). The frequency of temporal-self and social comparisons in people's personal appraisals. *Journal of Personality and Social Psychology*, *78*, 928–942.
- Yarrow, M. R., Campbell, J. D., & Burton, R. V. (1970). Recollections of childhood: A study of the retrospective method. *Monographs of the Society for Research in Child Development*, *35*, 1–83.
- Zimbardo, P. G., & Boyd, J. N. (1999). Putting time in perspective: A valid, reliable individual-differences metric. *Journal of Personality and Social Psychology*, *6*, 1271–1288.