Closure of autobiographical memories: The effects of written recounting from first- or third-person visual perspective

Ros A. Crawley

University of Sunderland, U.K.

Short title: Visual perspective and memory closure

Address for correspondence:

Dr. Ros Crawley
Department of Psychology,
University of Sunderland,
David Goldman Building,
St. Peter's Way,
Sunderland, SR6 0DD
U.K.
tel: +44 191 5152522
fax: +44 191 5152308
email: roz.crawley@sunderland.ac.uk

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Abstract

Autobiographical memories are recalled with varying degrees of psychological closure. Closure is a subjective assessment of how far a remembered experience feels resolved, and it has been suggested that one predictor of closure is the amount of emotional detail in the memory. Study 1 examined which aspect of emotional detail is important for closure and showed that open and closed negative memories were distinguished by ratings of emotion evoked during recall, not by remembered emotion from the time of the event. The recall of open memories was accompanied by more intense, more negative, and less positive emotion than the recall of closed memories. Biased retelling of memories has been shown to influence closure and on the basis of evidence that third-person recall serves a distancing function, Study 2 examined whether instructions to repeatedly recount an open memory from a third-person perspective would increase closure compared with a single or repeated recounting from a first-person perspective. While repeated third-person recounting had the greatest influence on closure, there were also increases in the first-person recounting groups. The results suggest that closure can be increased by reporting memories in written narrative form, particularly if repeatedly expressed from the third-person perspective.

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Beike and Wirth-Beaumont (2005) demonstrated that memories vary in psychological closure, a subjective state accompanying recall that reflects the degree to which the recalled experience feels resolved and understood. Closure is generally considered to be a desirable goal because open memories increase an individual's ruminative self-awareness which, in the long term, may be associated with anxiety and depression, and a decrease in self-esteem (Beike, Kleinknecht, & Wirth-Beaumont, 2004; Nolen-Hoeksema, 2000). Understanding more about what determines perceived closure and ways in which memory closure might be facilitated is the aim of the studies reported here. Study 1 examines the way in which emotional detail is related to perceived memory closure, and Study 2 investigates the influence of repeatedly writing about an open memory from an outsider's perspective on its perceived closure.

Beike and Wirth-Beaumont (2005) described closure in various ways including the degree to which a memory feels settled and behind one, a 'closed book', like ancient history, and no longer like unfinished business. The degree of closure is not determined simply by the kind of event remembered (Beike et al., 2004) or by the degree of emotion at the time of the event. Memories of experiences that evoked intense emotion when originally experienced may be remembered later with more or less closure, on a continuum from open to closed. Across four studies, Beike and Wirth-Beaumont showed that both pleasant and unpleasant event memories vary in perceived closure, that males usually rate memories as more closed than females, that older and more pleasant event memories are usually associated with greater closure, and that open memories are more frequently thought about than closed memories. Their main aim, however, was to test the prediction that perceived memory closure depends on the degree to which a constructed memory is emotionally detailed. Over time, memory for the emotional intensity with which events were originally experienced fades, with faster fading of negative than positive

emotion (Holmes, 1970; Walker, Vogl, & Thompson, 1997). In Conway and Pleydell-Pearce's (2000) theory of autobiographical memory, fading affect results from retrieval processes that reduce emotional detail in order to protect the Self-Memory System from the potentially disruptive effects of reliving the original emotion during recall. Beike and Wirth-Beaumont tested the hypothesis that it is low emotional detail in a constructed memory that results in memory closure and, on the basis of their findings, concluded that while properties of the remembered event such as recency and valence are influential, the amount of emotional detail in a memory is an important predictor of memory closure.

Beike and Wirth-Beaumont operationalised the degree to which a memory was emotionally detailed using two measures; the number of emotions reported when participants were asked to list the feelings in their memory for the event, and the subjective rating of the intensity of emotion evoked during recall. They argued for a link between the two on the basis of Bower's (1981) network theory saying that the autonoetic experience of emotion during recall is intimately linked to the proportion of emotional detail associated with the memory. Across the four studies they report, both measures were related to closure. For example, in their preliminary study, both pleasant and unpleasant open memories were rated as evoking more intense emotion during recall than closed memories, while in Study 1, the number of feelings remembered from the event predicted a memory's closure rating. In Study 2, participants recalled one open and one closed memory either from the recent past (the last twelve months) or from the distant past ("a long time ago"). Regression analyses revealed that while closure ratings for recent memories were predicted by rated emotional intensity during recall, closure ratings for distant memories were predicted by the number of feelings listed from the time of the event. Although both measures emerged as related to closure across their four studies, they acknowledged that the correspondence between them was weak. They suggest this

might be explained by an influence of memory recency such that subjective emotional detail (measured by rated intensity of emotion during recall) determines perceived closure of recent events while objective emotional detail (measured by the number of feelings listed from the time of the event) determines perceived closure of distant events.

However, the relationship between emotional detail and perceived closure deserves further attention because the measures used by Beike and Wirth-Beaumont confounded the aspect of emotional detail measured (emotional intensity or variety of feelings) with the time the emotion was aroused (at encoding or during retrieval). Both their measures could be applied to encoding or retrieval yet Beike and Wirth-Beaumont consider each in relation to only one aspect of memory: the rating of emotional intensity in relation to the time of recall, and the variety of feelings in relation to the remembered event. Thus it is unclear whether their suggestion that perceived closure for recent and distant memories is determined by subjective and objective emotional detail respectively relates to a difference between intensity of emotion and variety of emotions felt, or a difference between remembered emotional detail from the time of the event and emotion felt during recall. In fact, they did measure the subjective rating of emotional intensity during the original experience, and found no difference between open and closed memories, but they do not appear to consider this a measure relevant to emotional detail. Thus there is a need to examine more closely the relationship between perceived closure and the different ways in which emotional detail can be measured and this was the aim of Study 1.

In light of the link between open memories, rumination, and mental health, it is important to find ways to help people increase the closure of troubling memories. Study 2 investigates whether memory closure can be increased by writing about an open unpleasant memory from the third-person perspective. Beike and Wirth-

Beaumont (2005) used a biased retelling procedure in their final study and showed that the way a memory is retold can influence its perceived closure. Biased retelling influences not only what is reported during retelling but also the amount and type of information that is later recalled (Dudukovic, Marsh, & Tversky, 2004; Tversky & Marsh, 2000) so has the potential to influence closure over time. Beike and Wirth-Beaumont asked participants to write about unpleasant memories of loss focusing on aspects of their experience likely to decrease closure (emotional aspects, aspects not understood, or aspects that were currently relevant) or aspects likely to increase closure (objective and unemotional facts, aspects that were understood, or aspects that were no longer relevant). As predicted, they found that closure ratings were higher and fewer emotional details were reported after writing about the memory in a way designed to increase closure. The effect of retelling is further investigated here by examining the effect of writing about the memory from a first- or third-person visual perspective.

Whether the visual images that come to mind when retrieving autobiographical memories come from the first- or third-person perspective has received increasing attention in recent years (Rice & Rubin, 2009). The first-person perspective refers to the original point of view, as experienced at encoding. The third-person perspective refers to an outsider's point of view, as an onlooker would have viewed the original event. Evidence suggests that the perspective taken influences the degree of emotional reliving during recall (Sutin & Robins, 2008). It might therefore be expected to influence perceived memory closure. Since first-person memories are usually more prevalent than third-person memories (Nigro & Neisser, 1983; Robinson & Swanson, 1993), and since the third person perspective has been associated with reduced emotional reliving during recall, it was expected that a switch in perspective from the first- to the third-person perspective would result in an increase in closure.

Study 1

Open and closed memories were compared using the two measures of emotional detail used by Beike and Wirth-Beaumont applied both to remembered emotion and emotion during recall. In order to provide a fuller picture of the characteristics of open and closed memories, additional ratings of the emotional experience (intensity of emotion, positive emotion, negative emotion, and physical emotional reactions) and other memory characteristics (distancing, reliving, frequency of rehearsal, and visual perspective of recall) were also compared. It was predicted that closed memories would be rated higher than open memories for the degree to which participants felt distanced from the person they were in the memory, and that open memories would be rated higher than closed memories for reliving during recall. On the basis of the findings of Beike and Wirth-Beaumont (2005) and Savitsky, Medvec, and Gilovich (1997), open memories were expected to have been thought about and talked about more often than closed memories.

The prediction relating to visual perspective depends on whether closure is more closely associated with remembered emotion or emotion aroused during recall since a growing body of evidence shows a complex relationship between memory perspective and emotional experiences during remembering. Sutin and Robins (2008) suggest the possibility that the degree of emotional arousal *during recall* increases the likelihood of first-person memories, and the degree of emotion remembered from the *time of encoding* increases the likelihood of third-person memories. Thus, if open and closed memories differ primarily in the intensity of remembered emotion, then open memories should be more likely to be recalled from the third-person, but if they differ mainly in the degree of emotion aroused at recall, open memories should be more likely to be recalled from the first-person perspective.

In order to maximise the comparability of open and closed memories, participants were asked to recall negative interpersonal memories that occurred after the age of 18 years but not in the last six months. In the case of closed memories, participants were asked to recall a memory that had once been open to ensure that the experiences recalled were as similar as possible including a potential to be recalled as open. Negative memories were chosen for the study because it is these that may impact negatively on a person's mental well-being and self esteem (Beike et al., 2004; Conway & Pleydell-Pearce, 2000).

Method

Participants. Thirty two undergraduates (29 female, 3 male) from the University of Sunderland participated in the study for course credits. Their mean age was 22 years 5 months (22:5), range = 18-41 years, *SD* = 6:6.

Materials and Procedure. Participants completed a memory booklet in which they provided detailed written accounts of two negative memories, one open and one closed. The order of recall was counterbalanced across participants. The instructions asked for memories of unpleasant events that occurred at a specific time and place, involved interaction with at least one other person, and took place after the age of 18 but at least six months ago. An open memory was described as 'unfinished business', and a closed memory as 'a closed book' (Beike & Wirth-Beaumont, 2005 Study 2; Savitsky et al., 1997). Following each account, participants provided their age now and at the time of the remembered experience, and then responded to two sets of questions and rating items, one relating to their memory, and the other relating to their experience during recall. All rating items used 7 point Likert scales where 1 was the lowest rating and 7 was the highest for each characteristic.

The memory questions began with the five item closure rating scale used by Beike and Wirth-Beaumont: 'I have complete closure on this event', 'The event seems like ancient history', 'The event is a 'closed book' to me', 'The event is 'unfinished business' for me' (reverse scored), and 'I have put the event behind me completely'. All closed memories had once been open and for these memories, the next question asked for how long the memory had been closed. Participants then rated distancing ('I feel like the person in this memory is a different person than who I am today'), and their agreement with four items concerned with emotion at the time of the event ('My emotions at the time were… extremely positive, extremely negative, extremely intense', 'I remember the physical/bodily emotional reactions I felt at the time (e.g. palpitations, feeling tense, sweating, tears, laughter)'. They were then invited to use a few words or phrases to list details of their memory in each of seven categories: people, things, places, sensory details, thoughts, feelings, and actions. The category of interest was feelings; additional categories were included (but not analysed) so that the focus on feelings was not evident. The final items in this section asked for ratings of the frequency of thinking about and talking about the event.

The second set of questions concerned the recall experience and began with a rating of reliving ('While remembering the event now, I feel as though I am reliving it and it is happening now, not in the past') followed by a question asking whether the memory was visualised from the first-person perspective ('as I would have seen things, through my own eyes, from my field of view') or the third-person perspective ('as it would have been seen by an observer watching me'). Next, participants rated their agreement with four items relating to their emotions during recall: 'While recalling the event now… my emotions are extremely positive, my emotions are extremely negative, my emotions are extremely intense', 'I am experiencing intense physical/bodily emotional reactions (e.g. palpitations, feeling tense, sweating, tears,

laughter)'. Finally, they were asked to list their thoughts and feelings as they recalled the memory using a few words or phrases for each.

Results

Manipulation checks. Mean closure ratings (across the five closure items) were significantly higher for closed memories (M = 5.9, SD = 0.8) than for open memories (M = 2.3, SD = 1.1; $t(31) = -15.61$, $p < .001$). Moreover, on the 1-7 scale where 7 indicated the greatest degree of closure, all open memories were rated less than 4 and all closed memories 4 or over. All memories were of interpersonal experiences, and the majority concerned relationship issues or illness and death. The percentages of memories in these categories were similar for open memories (53% relationship, 28% illness and death, 19% other) and closed memories (44% relationship, 34% illness and death, 22% other). A related t-test showed no difference between open and closed memories in time since the remembered event, $t(31) = -1.46$, $p = .155$. The mean age of open memories was 2:3, SD = 2:3, and the mean age of closed memories was 3:1, SD = 3:4. The mean number of years for which the closed memories had been closed was 2:5, SD = 2:11 (range of 0:6-13 years).

Measures of emotion remembered from the event and emotion during recall. Ratings of emotion remembered from the original event and emotion aroused during recall for both open and closed memories were examined in a series of 2 x 2 within subjects ANOVAs for the four items relating to emotion (see Table 1). Positive emotion was rated significantly higher during recall than at the time of the event, significantly higher for closed memories than for open memories, and there was a significant interaction. Tests of simple main effects revealed no difference between open and closed memories for remembered positive emotion, $t(31) = 1.72$, $p = .096$, but higher ratings for closed than for open memories during recall, $t(31) = -4.22$, $p < .001$. Significantly lower ratings of negative emotion were reported for emotion

aroused during recall than for remembered emotion, and closed memories were rated significantly lower in negative emotion than open memories. These main effects were qualified by a significant interaction showing a similar pattern to that found for positive emotion; no difference between open and closed memories in remembered emotion, $t(31) = -1.58$, $p = .125$, only in emotion evoked during recall, $t(31) = 3.22$, $p = .003$, with higher ratings for open than for closed memories. The same pattern emerged for ratings of intensity of emotion. Ratings were significantly lower for emotion during recall than for remembered emotion, and for closed rather than open memories, and there was a significant interaction. Tests of simple main effects showed no difference between open and closed memories in remembered emotion, $t(31) = -1.05$, $p = .301$, but higher ratings for open than for closed memories during recall, $t(31) = 2.90$, $p = .007$. There was no effect of the closure variable on ratings of physical emotion. Ratings were significantly higher for remembered emotion than for emotion during recall, but there was no difference between open and closed memories, and no interaction.

Table 1 about here

The number of feelings listed as remembered from the time of the event and the number listed as felt during recall were analysed for open and closed memories in a 2 x 2 within subjects ANOVA (see Table 1). Significantly more feelings were reported from the time of the event ($M = 2.8$, $SE = 0.2$) than during recall ($M = 1.6$, $SE = 0.2$), but there was no effect of closure, and no interaction.

Other memory characteristics. Open and closed memories differed in ratings of reliving and distancing but not in perspective of recall. Ratings of reliving were higher for open memories ($M = 4.3$, $SD = 1.9$) than for closed memories ($M = 2.7$, $SD = 1.5$), $t(31) = 4.23$, $p < .001$, and ratings of distancing were higher for closed memories (M

= 5.0, *SD* = 1.9) than for open memories (*M* = 3.9, SD = 1.7), *t*(31) = -2.56, *p* = .015. There were more first- than third-person memories for both open memories (26 first-person, 6 third-person) and closed memories (24 first-person, 8 third-person).

Analysis of ratings of rehearsal using a 2 (open vs. closed) x 2 (thinking vs. talking) within subjects ANOVA revealed that participants reported thinking about their memories (*M* = 4.9, *SE* = 0.2) significantly more often than talking about them (*M* = 3.6, *SD* = 0.3), *F*(1, 31) = 29.36, *MSE* = 1.79, *p* < .001, and that rehearsal was rated as more frequent for open (*M* = 5.0, *SE* = 0.2) than for closed memories (*M* = 3.6, *SE* = 0.2), *F*(1, 31) = 39.65, *MSE* = 1.74, *p* < .001. There was no interaction, *F*(1, 31) = 1.52, *MSE* = 2.06, *p* = .227.

Discussion

The analysis of closure ratings confirmed that not only were closure ratings higher for closed than for open memories, there was a clear separation between them in mean ratings. The kinds of negative interpersonal experiences reported were similar, most of them concerning relationship issues or illness and death. There was no difference between them in age, the mean age being two years eight months, ruling out potential confounding from the association between memory recency and closure (Beike & Wirth-Beaumont, 2005). All closed memories were reported to have once been open, on average for about eight months.

The comparison between open and closed memories in terms of Beike and Wirth-Beaumont's two measures of emotional detail clarified that what distinguishes open from closed memories is the subjective ratings of emotional response *during recall* rather than the subjective ratings of *remembered* emotion or the number of feelings reported from the time of the event or during recall.. Moreover the results showed that open and closed memories are distinguished not simply by rated

intensity of emotion, but also by the degree of positive and negative emotion felt during recall. Consistent with the finding of less emotional arousal during recall of closed memories, ratings showed less reliving and a greater distancing between the current and the remembered self during recall of closed rather than open memories.

The perspective of recall was not influenced by perceived closure. Most memories, whether open or closed, came to mind from the first-person perspective. Sutin and Robins (2008) suggested that greater emotion during recall increases the likelihood of first-person memories, so more first-person memories might have been expected for open memories. That this was not the case may be because the emotion aroused by closed memories was still sufficient to bias recall to the first-person perspective. Alternatively, the first-person perspective may have arisen from the high emotional intensity remembered from the original experience which did not differ for open and closed memories. Although Sutin and Robins (2008) suggested that high emotion at encoding might increase the likelihood of *third-person* memories, some evidence suggests that the remembered emotion needs to be specifically self-focused before such a bias becomes apparent (e.g. d'Argembeau & van der Linden, 2008).

Ratings of rehearsal frequency showed that thinking about the memories was more common than talking about them and that, as predicted, both kinds of rehearsal were more common for open than for closed memories. Research on the effects of memory disclosure suggests it leads to changes that might be helpful in transforming an open to a closed memory. Such changes include increased distancing and increased fading of negative affect (Pasupathi 2007; Pillemer, Desrochers, & Ebanks, 1998; Skowronski, Gibbons, Vogl, & Walker, 2004). Thus, one might explain greater rehearsal of open memories as an attempt to increase closure. Study 2 examines

whether manipulating the perspective of recall during written disclosure of open unpleasant memories might increase perceived closure of such memories.

Study 2

In Study 2, participants were asked to recall one open negative memory that came to mind spontaneously from the first-person perspective, and the effect of a switch to the third-person perspective was compared with a single or repeated recounting from the first-person perspective.

There are two alternative predictions regarding the expected consequences of the third-person perspective arising from what Sutin and Robins (2008) call the Dispassionate Observer and the Salient Self views of third-person recall. The Dispassionate Observer view predicts that third-person recall will reduce the emotion evoked by a memory by distancing the current self from the recalled self. Robinson's (1996) suggestion that third-person recall is used to limit recall of emotional detail is supported by a variety of evidence suggesting that the third-person perspective serves a distancing function (e.g. Libby & Eibach, 2002; McIsaac & Eich, 2002; McNamara, Benson, McGeeney, Brown & Albert, 2005; Williams & Moulds, 2007) and reduces emotional reliving during recall of negative memories (Kross, Ayduk, & Mischel, 2005; Kross & Ayduk, 2008). This is consistent with the functions of points of view in fiction where a first-person narrative is said to encourage identification and a third-person narrative to encourage spectating (Oatley, 1999).

The alternative prediction arising from the Salient Self view is that the third-person perspective will *increase* the emotional response during memory recall by strengthening the connection between the current and the recalled self, and by increasing attention on the self both visually and emotionally. This view is supported by Terry and Barwick's (1998-1999) study in which third-person memories were rated

higher than first-person memories for vividness and emotionality. However, it seems mostly to apply to memories for experiences involving a focus on the self or self-conscious emotions such as pride or shame (d'Argembeau & van der Linden, 2008; Nigro & Neisser, 1983).

Sutin and Robins (2008) propose that both views may be supported in different circumstances depending on certain moderators such as whether a person focuses on similarities or differences between the current and past selves (Libby, Eibach, & Gilovich, 2005), and whether the focus is on which emotions were experienced or why those emotions occurred (Kross et al., 2005). In the absence of such moderators, and in light of evidence showing that switching from a first- to a third-person perspective reduces emotional reliving during recall (Berntsen & Rubin, 2006; Robinson & Swanson, 1993), the Dispassionate Observer view was expected to prevail in this study. Thus, it was predicted that following a switch from first-person recounting to third-person recounting, an originally open negative memory would be perceived as more closed and less relived, with greater distancing between the current and the remembered self, and with less intense, less negative, less physical, and more positive emotional arousal during recall. Since these effects may not be immediately effective, third-person recounting was repeated on two occasions. There were two comparison groups. One recounted the memory from the first-person perspective on all three recall occasions, and the other recounted their memory from the first-person on a single occasion only. The repeated first-person group was included to control for the effects of writing about the memory on three separate occasions without a change in perspective. The single first-person group was included to check that simply recounting the memory at the start of the study together with the passage of time did not influence closure or memory characteristics. Participants in the repeated and single first-person recounting groups were not

expected to change the way they processed the memory and therefore no changes were expected in these groups.

Method

Participants. There were 90 participants randomly assigned to one of three groups, 30 in each group: repeated third-person (3 male, 27 female), repeated first-person (9 male, 21 female), and single first-person (5 male, 25 female). The mean age of those who disclosed their age was 29:2 (*n* = 88, *SD* = 12:4, range = 18-62 years). Participants were undergraduates from the University of Sunderland who volunteered for course credits, and volunteer members of the public.

Materials and Procedure. Two testing sessions took place 1-2 weeks apart. At the first session, all groups began by recalling an open memory of a negative experience from the first-person perspective. They were given descriptions of first- and third-person perspectives and asked to choose an open negative memory of an unpleasant event that occurred at a specific time and place, involved interaction with at least one other person, took place after the age of 18 years but at least six months ago, and spontaneously came to mind from the first-person perspective. They completed a memory booklet similar to the one used in Study 1 in which they wrote a detailed description of the remembered event, provided their current age, their age at the time of the event, and answered questions and rating items about their memory and their recall experience that were the same as in Study 1 except for exclusion of the question about perspective. The first session ended at this point for the single first-person group. The other two groups undertook two more tasks. First they completed a 10-15 minute filler task rating six watch designs against ten adjectival descriptions, e.g. youthful / mature, on 7 point scales. They then completed a second memory booklet. Participants in the repeated first-person group provided a second detailed written description of their memory using the same first-person perspective

as before. Participants in the repeated third-person group provided a second detailed description, this time from the third- rather than the first-person perspective. All were asked to think about the memory from the appropriate perspective before writing about it. After writing their account, they completed the same ratings and questions as they did after their first recall except for the questions about age.

On the second testing session 1-2 weeks later, participants in the repeated first- and third-person groups were asked to think about the memory they had recalled at the first testing session from the appropriate perspective before writing a third detailed description of it and completing the same ratings and questions as they answered after the second recall. Single first-person participants were asked to bring the memory to mind but were given no instructions about perspective and they did not write about it again. They simply completed the same ratings and questions as the other two groups plus a question about perspective of recall. The term 'recall occasion' is used for the three times when participants could be asked to recall the memory. Note that the single first-person group recalled the memory for the second time on what is termed the third recall occasion.

Results

Equivalence of memory characteristics across groups. A series of one way between subjects ANOVAs showed that the memories chosen for recall by the three groups did not differ in age, degree of closure, negative emotion at the time of the event, or frequency of rehearsal (see Table 2). The time since the recalled experience varied widely, from 6 months to 43 years (M = 4:7, SD = 6:7, n = 88: two participants did not date their memories). All memories were rated as open on the first recall occasion (M = 2.6, SD = 1.0), and all were rated as high in negative emotion at the time of the event (M = 6.1, SD = 1.5). Ratings indicated that memories

had been thought about frequently (*M* = 6.1, *SD* = 1.5), and thought about more often than they were talked about (*M* = 3.7, *SD* = 1.7).

Table 2 about here

Characteristics of the memory and the recall experience. The purpose of the single first-person group was to see whether there were changes in memory characteristics in the absence of repeated recounting. The intention was to exclude this group from further analyses if there were no differences between measures on the first and third recall occasions. However, a series of repeated measures t-tests revealed that there were some significant changes so the single first-person group was included in further analyses. The t-test results are not reported separately because the same comparisons are included as part of the analyses that follow.

Because the single first-person group was included in the analyses but did not provide data on the second recall occasion, the primary analysis was a series of mixed 3 (group) x 2 (recall occasion 1, 3) ANOVAs. Significant interactions were explored by examining changes over time for the three groups separately using paired t-tests. When doing so, the data provided by the repeated first- and third-person groups on the second recall occasion was included to allow all available data to be used to determine when changes took place. For ease of reporting, only significant t-test results are reported. The mean ratings for all recall occasions and the results of the 3 (group) x 2 (recall occasion 1, 3) ANOVAs are shown in Table 3, first for characteristics of the memory (closure, distancing, and measures of remembered emotion), then for characteristics of the recall experience (reliving, and measures of emotion during recall).

Table 3 about here

Characteristics of the memory: Analysis of the closure ratings showed a significant increase in closure from the first to the third occasion qualified by a significant interaction. Further analysis suggested this arose from a greater increase in closure for the two repeated recounting groups (repeated first-person: $t(29) = -4.26$, $p < .001$; repeated third-person: $t(29) = -5.00$, $p < .001$) than for the single first-person group, $t(29) = -2.60$, $p < .05$. The repeated first-person group showed no increase from the first to the second occasion but a significant increase from the second to the third, $t(29) = -3.18$, $p < .01$, and the repeated third-person group showed significant increases from the first to the second, $t(29) = -3.25$, $p < .01$, and from the second to the third, $t(29) = -2.98$, $p < .01$.

The distancing ratings increased significantly from the first to the third occasion and there was also a significant interaction. Further examination of the interaction showed no change in ratings across time for the repeated or single first-person groups, only for the repeated third-person group which increased significantly between the first and third ($t(29) = -2.83$, $p < .01$), and second and third occasions ($t(29) = -3.36$, $p < .01$).

No significant effects emerged from the analysis of ratings of remembered positive emotion. All other measures of remembered emotion showed a significant main effect of recall occasion and / or a significant interaction. A significant interaction emerged from the analysis of ratings of remembered negative emotion. Ratings from the single first-person group did not change but those from the repeated first-person group increased significantly from the second to the third occasion, $t(29) = -2.09$, $p < .05$, while those from the repeated third-person group decreased

significantly from the first to the third occasion, $t(29) = 2.07$, $p < .05$. Ratings of remembered emotional intensity decreased significantly from the first to the third occasion but this was qualified by a significant interaction. Further analysis showed a significant decrease from the first to the third occasion only for the repeated third-person group, $t(29) = 2.16$, $p < .05$. Ratings of remembered physical emotion, like remembered intensity, showed a significant decrease from the first to the third occasion qualified by a significant interaction. The two repeated recounting groups showed significant decreases in remembered physical emotion from the first to the third occasion (first-person: $t(29) = 2.5$, $p < .05$, third-person: $t(29) = 4.25$, $p < .001$) while the single first-person group showed only a marginally significant decrease, $t(29) = 2.05$, $p = .05$. The repeated third-person group also showed a significant decrease from the first to the second occasion, $t(29) = 2.73$, $p < .05$. The number of remembered feelings decreased significantly from the first ($M = 3.6$, $SE = .18$) to the third recall occasion ($M = 3.2$, $SE = .16$) with no other significant effects.

Characteristics of the recall experience: Ratings of reliving decreased significantly from the first ($M = 4.4$, $SE = .19$) to the third ($M = 3.6$, $SE = .19$) occasion but there was no effect of group and no interaction. Analysis of positive emotion ratings revealed significant main effects of group and recall occasion, and a significant interaction. Pairwise comparisons showed ratings were significantly higher for the repeated first-person group than for the single first-person group ($p < .05$), and significantly higher on the third occasion compared with the first. The interaction was due to a significant increase in ratings from the first to the third occasion for the single first-person group, $t(29) = -2.09$, $p < .05$, no changes over time for the repeated first-person group, and significant increases from the first to the second, $t(29) = -2.45$, $p < .05$, and from the first to the third occasion, $t(29) = -3.14$, $p < .01$, for the repeated third-person group. Analysis of negative emotion ratings revealed two significant main effects with higher ratings reported by the single first-person group

than by the repeated first-person group, and higher ratings on the first occasion (*M* = 4.8, *SE* = .18) than on the third (*M* = 4.2, *SE* = .18). Analyses of emotional intensity ratings and physical emotion ratings both showed a single main effect of recall occasion and in each case ratings were higher on the first occasion (intensity *M* = 4.7, *SE* = .16, physical *M* = 3.5, *SE* = .21) than on the third (intensity *M* = 4.0, *SE* = .16, physical *M* = 2.9, *SE* = .18). No significant effects emerged from the analysis of the number of feelings reported during recall.

Regression analysis. A regression analysis was conducted to examine the predictors of changes in memory closure over time. As well as the increase in closure, nine other measures changed significantly from the first to the third recall occasion. In order to examine whether any of these changes predicted the increase in closure, a difference score (Recall 3-Recall 1) was calculated for each variable that yielded a significant main effect of recall occasion in the 3 x 2 ANOVAs shown in Table 3. To provide sufficient participant numbers for this analysis, and because there was no effect of group on closure ratings, data was collapsed across groups. Preliminary correlation analyses revealed a significant negative correlation between the change scores for positive emotion at recall and those for negative emotion at recall (r = -.633, p <.01) so the two measures were combined into a single measure of emotion change by subtracting the change in negative emotion at recall from the change in positive emotion at recall. A high score indicated a large change in both positive and negative emotion. The difference scores were entered into a stepwise multiple regression analysis with closure change as the outcome variable and the following change scores as predictor variables: distancing, remembered intensity, remembered physical emotion, the number of feelings remembered from the time of the event, reliving, combined positive and negative emotion at recall, intensity of emotion at recall, and physical emotion at recall. As Table 4 shows, the change in closure was predicted by the combined change in positive and negative emotion

during recall (R^2 = .29, p <.001), and reliving (R^2 = . 05, p <.05). The greatest impact on increased closure came from a combined measure of increased positive emotion and decreased negative emotion during recall, while a decrease in the feeling of reliving had a smaller but still significant impact.

Table 4 about here

Frequency of reported emotions. The particular emotions remembered and aroused at recall were examined on the first and third recall occasions across all participants. Table 5 shows the ten emotions most commonly reported. The most common negative emotion from the original experience was anger. Sadness, feeling upset and fear were also common. Anger, sadness and feeling upset were also commonly reported during recall but fear was much less frequent. Most emotions were reported less frequently during recall. The exceptions were sadness and relief (the only positive emotion) which were reported more often during recall.

Table 5 about here

Perspective. Scrutiny of the memory descriptions confirmed that when participants were instructed to use a particular perspective, all complied. The first person singular pronoun was commonly used in first-person memory narratives, e.g. “My son was 3 months old and in his baby seat. I remember seeing him thrown up, and then down”. In third-person narratives, participants referred to themselves as another person using ‘he’ or ‘she’, their name or initials, or they described seeing themselves in the memory, e.g. “I can see myself sitting in the corner of the room”. Participants in the single first-person group did not provide a narrative on the third

recall occasion nor were they told which perspective to take during recall. All except one reported that they brought the memory to mind from the first-person perspective.

Discussion

Comparisons between the groups showed that, on the first recall occasion, the memories were equivalent across groups in age, degree of closure, remembered negative emotion from the time of the event, and frequency of rehearsal. All memories were low in closure and high in remembered negative emotion. The emotions frequently reported from the time of the experience were anger, sadness, feeling upset, and fear. Prior rehearsal of the memory was commonly reported, more often by thinking about the memory rather than talking about it, although seven participants reported never having disclosed the memory before.

The analysis of change from the first to the third recall occasion by group showed no changes over time for any of the three groups in ratings of remembered positive emotion which remained low on all occasions, and no difference in the number of feelings reported during recall. On average, around two feelings were reported during recall, the most common being anger, sadness, feeling upset, relief and regret. The other measured characteristics did change over time, some consistently across groups, and others differing between groups.

While there were some differences in the degree and timing of changes, ratings of closure increased over time not only in the third-person recounting group, but in all three groups. The regression analysis revealed that the most important predictor of the increase in closure was the measure that combined the increase in positive emotion and decrease in negative emotion during recall. The only other predictor was a decrease in the feeling of reliving during recall. The other memory

characteristics that changed over time (increase in distancing, decrease in remembered intensity, remembered physical emotion, number of feelings remembered from the time of the event, intensity of emotion at recall, and physical emotion at recall) did not make any further contribution to predicting the increase in closure. These results are consistent with those of Study 1 and show that it was the subjective experience of emotion during recall that was the most important determinant of closure.

The main aim of Study 2 was to examine the effect on memory closure of writing about an open unpleasant memory from the third-person perspective. It was predicted that switching from the first- to the third-person perspective would result in the initially open memory being rated as more closed and less relived, with greater distance between the current and the remembered self, and with less intense, less negative, less physical, and more positive emotional arousal during recall compared with single or repeated recounting from the first-person perspective. All these characteristics changed in the direction predicted following the switch to the third-person but, contrary to prediction, the changes were not always confined to the repeated third-person recounting group.

All three manipulations led to increases in perceived closure. The shift towards the closed end of the scale was not dramatic; even the highest mean ratings were still only at about the midpoint of the scale by the third recall occasion. Nevertheless, the results show that just bringing the memory to mind and writing about it from the original first-person perspective on a single occasion was sufficient for participants to report increased closure 1-2 weeks later. The increase was even greater when the memory was brought to mind and written about on three occasions. Those who repeated their initial first-person recounting reported increased closure by the third occasion, while those who switched to the third-person reported an increase

by the second recounting, with another increase by the third recounting. Thus, as predicted, a switch from the first- to the third-person perspective was effective in increasing the perceived closure of unpleasant open memories and each of the third-person recountings led to a significant increase in closure. In addition, only participants in the repeated third-person group showed increased distancing, supporting previous findings associating distancing with third-person recall (e.g. Libby & Eibach, 2002; McIsaac & Eich, 2002; McNamara et al., 2005; Williams & Moulds, 2007). While these results seem to support the Dispassionate Observer view that the third-person perspective serves a distancing function and reduces the emotion evoked by a memory (e.g. Robinson, 1996), thus leading to closure, the third-person perspective alone cannot be responsible for the increase in closure because closure also increased in the other two groups.

General Discussion

The aim of Study 1 was to clarify the association between the perceived closure of memories and emotional detail at encoding and recall. Comparison between open memories and closed memories that had once been open showed that what distinguished them was the subjective experience of emotion during recall, not the variety of feelings reported during recall or encoding, and not the remembered experience of emotion at the time of encoding. Both open and closed memories were remembered as intensely emotional, highly negative, with high levels of physical emotional responses and little positive emotion at the time they occurred. Both aroused less emotion during recall than at the time of the event. They did not differ in the number of feelings reported from the time of encoding or at recall, and fewer feelings were reported for both during recall. However, compared with closed memories, open memories aroused more intense, more negative, and less positive

emotion during recall. Thus, greater closure was associated with more positive, less negative and less intense emotion during recall.

The regression analysis in Study 2 confirmed the association between closure and emotion experienced during recall. The most important predictor of closure change over time was the combined increase in positive emotion and decrease in negative emotion during recall, with an additional effect of decreased reliving during recall. Even though the number of remembered feelings decreased along with the increase in closure, this change did not predict the increase in closure. Thus, it seems that the aspect of emotional detail that is important in determining perceived memory closure is the subjective experience of emotion during recall. Beike and Wirth-Beaumont (2005) argued that closure was determined by both subjective ratings of emotional intensity during recall and the variety of feelings remembered from the time of encoding, with the former possibly more important for recent memories and the latter for distant memories, but these results suggest that it is the subjective experience of emotion during recall that is important for determining closure of memories of a variety of ages. Moreover, it is not simply emotional intensity that is important; it is also the valence of the emotion and the accompanying feeling of reliving the experience. Study 1 also revealed a greater feeling of distancing between the current and the remembered self for closed memories, consistent with a reduced sense of reliving during recall.

In Study 1 open memories were reported to have been rehearsed more frequently than closed memories. This is consistent with previous research (e.g. Beike & Wirth-Beaumont, 2005) and may reflect attempts to move the open memories towards the closed end of the continuum. However, this explanation applies more readily to studies in which the closed memories may never have been open. It deserves further consideration before being applied here. The closed

memories in Study 1 had all once been open and therefore had already moved successfully along the continuum to become closed. One might therefore expect that they would have been rehearsed more frequently than the open memories. That this is not the case may be because it is not rehearsal or disclosure per se that leads to reduced affect and greater closure, but *how* the memory is thought about or talked about. It may be that if disclosure involves mere rehearsal without achieving greater understanding or resolution, then it will not lead to greater closure, just as brooding rumination is less beneficial than reflective rumination (Treynor, Gonzalez, & Nolen-Hoeksema, 2003). It could be that the closed (but once open) memories in Study I are ones for which rehearsal was productive, and the open memories are ones that, despite frequent rehearsal, are not transformed by the process. The results of Study 2 support the notion that the way in which memories are recounted influences their perceived closure. While, contrary to prediction, changes in closure and other memory characteristics were not confined to the repeated third-person recounting group, the three kinds of recounting did not yield identical effects. For example, only participants in the repeated third-person group reported increased distancing and decreased remembered negative emotion and emotional intensity.

Nevertheless, it was the case that all three kinds of recounting led to an increase in perceived closure and possible reasons for this need to be explored. The impact of a memory on current emotions, and thus the degree to which it feels open or closed, depends on a number of factors including the extent to which an individual understands the remembered event (Beike & Wirth-Beaumont, 2005), its relevance or personal significance (Beike & Wirth-Beaumont, 2005; Robinson, 1996; Sonnemans & Frijda, 1995), how it relates to their most important current goals and self identity (Singer & Salovey, 1993), and how it relates to their life story (McAdams, 2001). Some of these other factors may have influenced perceived closure in this

study. This might explain why, contrary to prediction, repeated third-person recounting was not singularly effective in increasing closure.

For participants who repeatedly recounted their memories, from either the first- or third-person perspective, the increase in closure and the reduction in reliving and emotional arousal during recall might be explained by the increase in understanding that can be facilitated by constructing a narrative on more than one occasion. Pennebaker and colleagues have presented extensive evidence to show physical and mental health benefits following repeated sessions of expressive writing in which people express their deepest emotions and thoughts (e.g. Pennebaker & Chung, 2007; Pennebaker & Seagal, 1999; Smyth, 1998). It has been suggested that the benefits may be partially a result of closure (Pennebaker, 1997). This would appear to directly contradict Beike and Wirth-Beaumont's (2005) finding that closure increased after participants wrote about their experience with no focus on their emotions. Beike and Wirth-Beaumont suggest the contradiction may be explained by the difference between emotional detail in written narratives of memories (the focus of Pennebaker's work) and emotional detail in the memories themselves (the focus of Beike & Wirth-Beaumont's concern), pointing out that the two are not always congruent. Another possibility, however, is that the contradiction is not as great as first appears.

The opportunity to repeatedly write about an experience in the Pennebaker paradigm may allow some people to alter the way they write and think about their experience in ways that encourage closure. Evidence suggests that those who benefit most from repeated expressive writing are those whose accounts change in style over successive recountings as they construct a narrative. The changes associated with the greatest health improvements include increases in causal language and insight words, indicating a focus on understanding the experience

(Klein & Boals, 2001; Pennebaker, Mayne & Francis, 1997) and flexible switching between first person singular pronouns (I, me) and other personal pronouns (e.g. we, she, you, they) indicating changes in perspective (Campbell & Pennebaker, 2003). In other words, those who show the most benefit do not simply continue to write an emotionally expressive account from their own perspective but, even without explicit instruction, they change their writing style over repeated recountings in ways similar to those used by Beike and Wirth-Beaumont to encourage closure. As Tversky and Marsh (2000) have shown, the way a memory is retold influences the way it is later recalled. Thus it is possible that simply writing about the memory on several occasions, whatever the instructed perspective, may lead to greater understanding and thus influence memory closure. This might explain why the changes in closure and other memory characteristics following repeated first-person recounting in Study 2 were almost as great as those following repeated third-person recounting.

An explanation based on the benefits of repeated writing cannot apply to the participants in the single first-person group because they only wrote about their memory on one occasion. The simple act of recalling, rather than writing about, the memories is also unlikely to have led to the observed changes because ratings show they had often been thought about before the study began yet had remained open. Instead, it seems that a single act of converting the memory into a narrative description influenced memory characteristics, although whether this was due to the narrative construction itself and / or subsequent processing of the memory in the interval between the first and third recall occasions cannot be established. It may be that writing about the memory on the first occasion encouraged further processing of the memory that led to increased understanding and thus increased closure in a way that previous rehearsal without writing had not. No information was collected about how much time was spent thinking about the memory between sessions and how

much meaning-making or other kinds of autobiographical reasoning (McLean & Fournier, 2008) this may have provoked. This needs to be explored in further studies.

Even though the effect of repeated third-person recounting was more similar than expected to the effects of single or repeated first-person recounting, it did differ in some respects. The increase in closure was evident sooner, and there were decreases in remembered negative emotion and emotional intensity and an increase in distancing not observed in the other two groups. Thus, of all the manipulations, repeated third-person recounting had the most influence on perceived closure and remembered emotion. This is consistent with the suggestion that the third-person perspective facilitates a decrease in emotional detail and more dispassionate recall (e.g. Berntsen & Rubin, 2006; Robinson & Swanson, 1993), and is similar to the 'decentred perspective' in mindfulness based cognitive therapy in which people observe their thoughts and feelings at a distance and without judgement (Segal, Williams, & Teasdale, 2002). The third-person perspective has been shown to lead people to more dispositional (rather than situational) attributions for their own past behaviour (e.g. Frank & Gilovich, 1989) and to encourage individuals to focus on the causes of events and how they felt, and to assess the experience from a broader perspective (e.g. Kross & Ayduk, 2008). These factors may account for the particular effectiveness of third-person recounting for increasing closure.

If memories that are open can become more closed, it is possible that they can also move from the closed to the open end of the continuum. For example, it has been suggested that as memories are retrieved, they are appraised for congruence with the self and for threat to self-esteem (Sutin & Robins, 2008). Thus, if something happens to change our previous understanding of an experience so that a memory that was appraised as no threat to self-esteem becomes threatening, our memory for that experience might move from closed to open. In other words, if closure depends

on how a memory is appraised on each recall occasion, this may change over time as goals and understanding change. A poignant example of the influence of subsequent knowledge and understanding on the quality of the remembered experience is provided by Elizabeth McCracken (2009: 21-22) writing about her experience of the stillbirth of her first child: “time changed backwards.. and now… every single day of my first pregnancy, when I was laughing till I was paralytic at my own jokes about what to name the baby, when I was addressing fond monologues to my stomach as I drove a horrific old Ford Escort through the French countryside, he was already dead… and our hearts were already broken.”

As Study 1 demonstrated, the recall of open memories is accompanied by more intense, more negative and less positive emotion than the recall of closed memories. Furthermore, recalling open memories increases ruminative self-awareness and can lead to anxiety, depression and a decrease in self-esteem (Beike et al., 2004; Nolen-Hoeksema, 2000). It is therefore important to find out more about how to encourage memory closure. The studies reported here suggest that providing explicit instructions to repeatedly recount a remembered experience, particularly from the third-person perspective, may be one way of helping people to resolve open negative memories and achieve psychological closure.

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Table 1

Study 1: Measures of remembered emotion and emotion during recall for open and closed memories and results of ANOVAs

	Open memories	Closed memories	Remembered / during recall			Open / Closed memories			Interaction		
	M (*SD*)	*M* (*SD*)	*F*(1, 31)	*MSE*	*p*	*F* (1, 31)	*MSE*	*p*	*F*(1, 31)	*MSE*	*p*
Rated positive emotion											
Remembered	1.6 (1.2)	1.3 (0.6)	49.78	1.54	<.001	8.83	1.49	<.01	21.88	1.33	<.001
During recall	2.2 (1.3)	3.8 (1.9)									
Rated negative emotion											
Remembered	6.3 (1.2)	6.6 (0.6)	57.93	2.21	<.001	4.91	1.63	<.05	12.75	1.66	.001
During recall	5.1 (1.8)	3.8 (1.9)									
Rated intensity of emotion											
Remembered	6.2 (1.5)	5.9 (1.5)	65.14	2.35	<.001	6.98	1.79	<.05	4.43	1.02	<.05
During recall	4.3 (1.8)	3.3 (1.8)									
Rated physical emotion											
Remembered	6.3 (1.1)	6.1 (1.3)	120.23	3.00	<.001	3.34	2.25	.08	2.00	1.13	.170
During recall	3.2 (1.9)	2.4 (1.9)									

Number of feelings											
Remembered	2.7 (1.3)	2.8 (1.2)	25.62	1.58	<.001	0.38	1.29	.54	1.23	1.13	.276
During recall	1.8 (1.3)	1.5 (1.0)									

Note: Ratings range from 1-7.

Table 2.

Study 2: Characteristics of the memory recalled by the three groups on the first recall occasion and results of ANOVAs

	Repeated 1st person *M (SD)*	Repeated 3rd person *M (SD)*	Single 1st person *M (SD)*	*F*	*MSE*	*df*	*p*
Age of memory (months)	65.2 (83.2)	60.2 (96.6)	38.3 (48.6)	0.96	6217.24	2, 85	.387
Closure rating	2.9 (1.0)	2.3 (1.2)	2. 5 (0.9)	2.48	1.04	2, 87	.090
Ratings of remembered negative emotion	5.9 (1.6)	6.1 (1.6)	6.1 (1.4)	0.24	2.32	2, 87	.791
Rated frequency of thinking about the memory	4.7 (1.4)	5.0 (1.3)	5.1 (1.2)	0.71	1.60	2, 87	.493
Rated frequency of talking about the memory	3.4 (1.8)	3.9 (1.6)	3.9 (1.7)	0.65	2.92	2, 87	.524

Note: Ratings range from 1-7.

Table 3.

Study 2: Characteristics of the memory and the recall experience reported by the three groups and results of 3 x 2 ANOVAs

	Repeated 1st person	Repeated 3rd person	Single 1st person	Effect of Group	Effect of recall 1, 3	Interaction
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*F*(2, 87) *MSE* *p*	*F*(2, 87) *MSE* *p*	*F*(2, 87) *MSE* *p*
Memory characteristics						
Closure rating						
Recall 1	2.9 (1.0)	2.3 (1.2)	2.5 (0.9)	1.93 2.30 .151	47.78 0.57 <.001	4.65 0.57 <.05
Recall 2	3.1 (1.2)	3.0 (1.5)				
Recall 3	3.5 (1.2)	3.6 (1.7)	2.9 (1.0)			
Distancing rating						
Recall 1	3.9 (2.1)	4.0 (2.0)	4.0 (1.9)	0.60 6.30 .552	4.01 1.09 <.05	3.26 1.09 <.05
Recall 2	3.9 (1.9)	4.2 (1.9)				
Recall 3	4.0 (1.8)	4.8 (2.0)	4.0 (1.8)			
Remembered emotion ratings						
Positive						
Recall 1	1.8 (1.5)	1.6 (1.5)	1.3 (1.0)	0.65 2.95 .527	2.21 0.73 .141	0.37 0.73 .689
Recall 2	2.2 (1.6)	1.8 (1.3)				

	Recall 3	1.8	(1.3)	1.8	(1.4)	1.6	(1.4)						
Negative													
	Recall 1	5.9	(1.6)	6.1	(1.6)	6.1	(1.4)	0.12	3.53	.887	0.06	0.38	.810	3.55	0.38	<.05
	Recall 2	5.7	(1.7)	6.1	(1.3)											
	Recall 3	6.2	(1.1)	5.8	(1.5)	6.1	(1.2)									
Intensity																
	Recall 1	6.2	(1.1)	6.4	(0.9)	6.1	(1.4)	0.30	2.38	.744	4.37	1.22	<.05	3.20	1.22	<.05
	Recall 2	5.9	(1.5)	6.1	(1.3)											
	Recall 3	5.7	(1.8)	5.7	(1.7)	6.3	(0.8)									
Physical																
	Recall 1	6.1	(1.3)	6.6	(0.9)	6.1	(1.3)	0.14	2.44	.870	27.97	0.84	<.001	3.58	0.84	<.05
	Recall 2	5.8	(1.4)	6.0	(1.1)											
	Recall 3	5.6	(1.2)	5.4	(1.7)	5.7	(1.4)									
No. of feelings																
	Recall 1	3.6	(1.7)	3.4	(1.4)	3.7	(1.9)	0.26	4.19	.768	6.88	0.93	=.01	0.18	0.93	.832
	Recall 2	3.2	(1.7)	2.6	(1.4)											
	Recall 3	3.1	(1.5)	3.1	(1.5)	3.4	(1.6)									

Recall experience												
Reliving												
	Recall 1	4.0	(1.9)	4.8	(1.5)	4.4	(1.9)	1.08	4.74	.345	19.61	1.47	<.001	0.83	1.47	.440
	Recall 2	3.8	(2.1)	4.4	(2.1)											
	Recall 3	3.5	(1.9)	3.8	(1.8)	3.6	(1.6)									
Rated emotion during recall																
Positive																
	Recall 1	3.7	(1.9)	2.3	(1.2)	2.4	(1.7)	3.97	4.28	<.05	10.34	1.19	<.01	4.63	1.19	<.05
	Recall 2	3.1	(1.8)	3.1	(1.8)											
	Recall 3	3.6	(1.7)	3.5	(1.9)	2.8	(1.6)									
Negative																
	Recall 1	4.1	(1.7)	5.1	(1.5)	5.3	(1.6)	3.77	4.32	<.05	15.06	1.04	<.001	1.31	1.04	.276
	Recall 2	4.7	(1.8)	4.7	(1.9)											
	Recall 3	3.8	(1.5)	4.2	(2.0)	4.7	(1.5)									
Intensity																
	Recall 1	4.5	(1.7)	4.9	(1.6)	4.8	(1.4)	0.02	3.46	.979	19.49	1.28	<.001	2.04	1.28	.137
	Recall 2	4.5	(1.9)	4.5	(1.9)											

	Recall 3	4.2	(1.4)	3.8	(1.9)	3.8	(1.2)							
Physical														
	Recall 1	3.5	(1.9)	3.9	(2.0)	3.1	(2.0)	0.89	5.12	.415	10.85	1.72	=.001	1.01	1.72	.369
	Recall 2	3.7	(2.1)	4.0	(1.9)											
	Recall 3	3.1	(1.5)	2.9	(2.1)	2.6	(1.5)									
No. of feelings																
	Recall 1	2.2	(1.5)	2.5	(1.4)	2.2	(1.2)	0.17	2.93	.842	1.65	0.86	.203	0.86	0.86	.428
	Recall 2	2.5	(1.7)	2.3	(1.5)											
	Recall 3	2.1	(1.6)	2.1	(1.1)	2.1	(1.4)									

Note: Ratings range from 1-7.

Table 4.

Study 2: Summary of regression analysis for predictor variables of closure ratings

Variable	B	SE B	β
Combined positive and negative emotion during recall	.188	.037	.465***
Reliving	-.149	.060	-.230*

* p <.05

*** p <.001

Table 5.

Frequency of the most commonly reported specific emotions remembered from the event and felt during recall on recall occasions 1 and 3

Emotion	Remembered from the event		Experienced during recall	
	Recall 1	Recall 3	Recall 1	Recall 3
Anger	37	34	25	16
Sadness	21	21	24	30
Feeling upset	19	25	15	8
Fear	18	15	3	2
Hurt	14	10	2	5
Guilt	13	10	6	6
Anxiety	13	7	5	3
Relief	4	5	9	10
Frustration	8	10	4	4
Regret	4	4	8	8