

14th Sydney Symposium on Social Psychology
University of New South Wales, 15-17 March 2011

Field and Observer Perspectives in Autobiographical Memory

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Events of the personal past may be remembered from two points of view. One is from a first-person or field perspective, such that people relive the events through their own eyes, as if they were looking outward, experiencing the events now much like they did before. Alternatively, rememberers may adopt a third-person or observer perspective, so that they “see” themselves as actors in the memory image.

As is true of psychology itself, the distinction between field (F) and observer (O) perspectives has a long past but a short history. Freud (1899/1959), for instance, maintained that it had important psychodynamic implications for understanding memory (also see Henri & Henri, 1897). He believed that early childhood memories of anxiety-provoking preoedipal experiences were reconstructions that masked deeper emotional conflicts, and that one way to accomplish this masking was to take an observer perspective while recollecting.

Nonetheless, experimental analysis of the F/O distinction is a relatively recent enterprise. The first experiments were reported in the early 1980s and of the 70-odd studies that have appeared since then, more than 70% were published in the last decade (Rice & Rubin, 2009). This increase in the size of the literature is matched by a broadening of its scope, as an increasingly diverse group of researchers--specialists in emotion, neuroimaging, autobiographical memory, individual differences, self-awareness, post-traumatic stress, and other areas--have taken an interest in field and observer modes of remembering. Thus, the concept of multiple memory perspectives can itself be viewed from

multiple research perspectives. To illustrate this point, we begin with a review of cognitive and social aspects of the field/observer distinction. Next we discuss a recent study in which fMRI, recall narratives, and subjective ratings were combined with a view to identifying the neural networks engaged by field vs. observer perspectives. Attention will then shift to the clinical significance of the memory perspectives, before settling at the end on promising directions for future research.

COGNITIVE AND SOCIAL ASPECTS OF MEMORY PERSPECTIVE

For students of cognitive or social psychology, the distinction between field and observer modes of remembering is significant in several respects, as discussed below.

Malleability of Memory

In the first place, the fact that personal episodes or events can be perceived from a first-person perspective, but remembered from a third-person vantage point, attests to both the malleability of human memory--a topic of enormous theoretical and applied interest--and to the dynamic, reconstructive nature of autobiographical recall (Conway & Pleydell-Pearce, 2000). At the same time, the field/observer draws attention to the unique capabilities of human episode memory--that "true marvel of nature" (Tulving, 2002, p.1). As we have noted elsewhere, "Besides making it possible for people to reexperience their past and project themselves into the future, and thus travel mentally through subjective time (Tulving, 1983), episodic memory enables rememberers to

navigate from either a participant's or an observer's point of view" (Eich, Nelson, Leghari, & Handy, 2009, p.2239).

Determinants of Memory Perspective

The second important point is that field and observer perspectives arise under different circumstances and are differentially affected by several factors. Three of these factors were identified by Nigro and Neisser (1983), the first psychologists to examine the distinction experimentally.

Nigro and Neisser asked undergraduates to recall a specific time they were in each of eight situations--watching the news on television, for instance, or running for exercise. A preliminary study, using multidimensional scaling, had shown that these situations can be represented as points in a two-dimensional space defined by in a space defined by emotionality (ranging from neutral to intense) and self-awareness (low to high). For each recalled occasion, participants indicated the approximate date the event took place, rated the vividness of their recollection, and indicated whether they remembered they event from a first-person or Field (F) perspective, a third-person or Observer (O) perspective, or Neither (N) vantage point.

Only 9% of all recalled occasions were categorized as N, which Nigro and Neisser took as an encouraging sign that the distinction between F and O perspectives is a relatively natural one. The majority of the remaining memories were classified as F rather than O--a finding borne out by subsequent studies (e.g., Frank & Gilovich, 1989; Terry & Barwick, 1995).

Also encouraging was the finding that, compared with events of the recent past, remote memories were less vivid and more likely to be reconstructed from an observer's perspective. This finding agreed with Nigro and Neisser's (1983, p.468) reasoning that "If the observer perspective is really a sign of mnemonic change, we might expect it to appear more often in relatively old memories, in which reconstructive processes have had more time to do their work."

Nigro and Neisser (1983) also reasoned that the field perspective should "predominate for experiences that are so significant or so emotional that they have resisted reconstruction" (p.468). Though this view is consistent with recent research, discussed below, on self-defining memories in old age, Nigro and Neisser's results told a somewhat different story. They found that memories retrieved from the field perspective outnumbered observer recollections in all situations except those entailing a high degree of emotional self-awareness, such as giving an individual public presentation or running from a threatening situation. Moreover, when participants were asked to describe, in their own terms, what they "saw" when they remembered an event from the field perspective, they often mentioned how they felt: proud, shocked, fatigued, upset, anxious, and accomplished were among the most common descriptors. In contrast, verbal accounts of observer memories contained few references to any feelings or emotions. Thus it seems that the very situations most imbued with emotional self-awareness--speaking in public, for example, or escaping from danger--are those most often remembered in dry, affectless terms from a distant, observer-oriented perspective. Further, the finding that field memories are more likely to

contain information about feelings and emotions implies that, were one deliberately trying to remember emotions, one might deliberately chose the field over the observed perspective.

This inference led to Nigro and Neisser's final study. As in the earlier experiment, participants were cued to recall various situations (watching television, participating in a group performance, etc.). However, whereas some subjects were directed to describe the feelings associated with each experience, others were instructed to recall the concrete, objective circumstances surrounding the event. A third group of subjects was asked simply to "describe the experience."

Replicating previous results, more events were recalled from the field than from the observer perspective (64% vs. 35%) and there were very few "neither perspective" memories (1%). As Nigro and Neisser had predicted, the majority of memories recalled by the feeling-focused group were from the field rather than the observed perspective, while the opposite was true for participants who concentrated on the objective circumstances in which the events occurred. Interestingly, the neutral instruction to "describe the experience" netted as many field-perspective memories as did the request to recall feelings. Absent any specific retrieval instructions, it would appear that people are predisposed to remember their feelings, which in turn promotes adoption of the field perspective as the default mode of remembering (D'Argembeau, Comblain, & van der Linden, 2003).

Taken together, the results of Nigro and Neisser's (1983) seminal studies showed that "the phenomenal distinction between observer and field memories is meaningfully related to characteristics of the original experience, to the individual's purpose in recalling that experience, and to the reported interval between experience and recall" (p.481). Much of the cognitive and social research carried out since then has sought to replicate and extend these findings, as described below.

Characteristics of the original experience. It is a truism of human episodic memory that how an event is retrieved depends on how it was encoded. In Nigro and Neisser's (1983) experiments, the key encoding dimensions were emotionality and self-awareness: participants preferred the field to the observer perspective when recalling real-life events, save for stressful experiences in which attention was focused on the self at encoding. How general are these effects, and do other encoding dimensions--such as emotional valence (positive vs. negative) or intensity (high vs. low)--matter as well?

When undergraduates are asked to recall events from their personal past, their memories are more apt to take the field perspective if the events evoked a strong emotional reaction (D'Argembeau et al., 2003; Strongman & Kemp, 1991; Talarico, LaBar, & Rubin, 2004). However, the valence of the reaction does not seem to matter very much, even though memories of positive events contain more sensory and contextual details (sights, sounds, locations, dates) than do memories of negative events (D'Argembeau et al., 2003; Talarico et al., 2004). It also makes little difference whether the events evoked reflexive emotions, such

as pride and shame, which are directed toward the self, as opposed to non-reflexive emotions, such as anger and surprise, which involve appraisals of and reactions to the world (Leary, 2007; for discussion of the related concept of self-conscious emotions, see Tracy & Robins, 2004). Berntsen and Rubin (2006, p.1197) surmised that “Since reflexive emotions involve more self-awareness and as self-awareness has been associated with observer perspective (e.g., Frank & Gilovich, 1989; Nigro & Neisser, 1983), we should expect memories of reflexive emotional states to involve more observer perspective than memories of nonreflexive emotions.” Though Berntsen and Rubin’s reasoning was sound, their results were negative: memories of reflexive and nonreflexive emotional experiences were equally likely to be retrieved from an observer’s vantage point.

On the other hand, undergraduates tested by Porter and Birt (2001) reported more observer perspective when they recalled the most traumatic experience of their lives as opposed to the most emotionally positive experience. This suggests that although perspective may not differentiate between positive and negative events in general, trauma may represent a special subtype of negative experience, one that is especially conducive to reconstruction from an observer’s point of view.

In a related study, Berntsen, Willert, and Rubin (2003) examined the characteristics of traumatic autobiographical memories in a non-clinical population of students who either did or did not match a DSM IV-defined symptom profile for post-traumatic stress disorder (PTSD). Asked to describe the traumatic experience that troubled them the most, participants with the PTSD

symptom profile reported more intrusive recollection, more vivid reliving of negative emotions and bodily sensations (helplessness, terror), and more observer perspective in the memory image (seeing themselves from the outside). These respondents also believed more strongly that the trauma had become part of their identity, and that it exerted a greater impact on their current lives. Despite these differences, participants with or without the PTSD symptom profile were similar in terms of the severity of the traumatic event, that is, whether the participant or someone else had been physically injured or whether their lives had been in danger.

Given these results, we should qualify the point made earlier: that trauma may represent a special subtype of negative experience, one that is especially conducive to reconstruction from an observer's point of view--needs to be qualified. It seems more accurate to say that whether or not a traumatic event is "special," in this specific sense, depends not on characteristics of the event per se, but rather on how an individual comprehends and copes with the event. As Berntsen et al. (2003) have argued, "the crucial difference between persons with PTSD and persons with traumas but no PTSD is the degree to which the traumatic memory has formed a landmark in the organization of autobiographical memory, with a continuous impact on the interpretation of new experiences and the development of expectations for the future" (p.679). Such a landmark represents a prime target for rumination, which is known to worsen in PTSD. Rumination rehearses the traumatic memory, making it more accessible to recall, prolonging its status as a landmark, and promoting a vicious cycle that has

consequences for an individuals' cognitive and emotional well-being. In Berntsen et al.'s (2003) succinct summation: "Increased access to the trauma memory and its role as a landmark leads to vivid and intrusive memories and over-inclusive classifications of other non-traumatic memories as related to the trauma. This is likely to generate a need by the traumatized person for distancing him- or herself from the phenomenological painful reliving and thus motivate the use of an observer perspective in remembering" (p.690).

We will revisit these ideas in later sections dealing with the functional significance of field and observer modes of remembering memory perspective and with clinical aspects of memory perspective.

Event age. Nigro and Neisser's discovery of a relationship between memory age and memory has been replicated several times (Sutin & Robins, 2009). For instance, Rice and Rubin (2009, Study 1) asked undergraduates to recall one personal event from each of several time periods, ranging from recent (during college) through intermediate (during junior high school) to remote (before first grade). Order of recall--chronological (earliest events first, latest events last) or reverse chronological--was varied between subjects and participants indicated the perspective they used when recalling each event on a 7-point scale (1=own eyes, 7=observer).

More observer memories were reported by women than by men, and both genders experienced more such recollections when events were recalled in reverse-chronological order, regardless of time period. The gender difference will be discussed later; the effect of order of recall may represent a form of

temporal distancing, such that moving backward rather than forward in personal history accentuates the difference between current and former self-perceptions, which in turn promotes adoption of the observer perspective as a means to achieve separation between present and past selves (e.g., Libby & Eibach, 2002; Ross & Wilson, 2002; Wilson & Ross, 2003). For present purposes, however, the main finding of interest is the trend, depicted in Figure 1, for remote memories to be rated as more third-person than recent memories.

//// Figure 1 ////

Recent work by Pascale Piolino and her associates provides insight into the processes driving this shift in perspective (Piolino, Desgranges, Clarys, Guillery-Girard, Taconat, Isingrini, & Eustache, 2006; Piolino, Desgranges, & Eustache, 2009; Piolino, Desgranges, Hubert, Bernard, Chetelat, Baron, et al., 2008). Central to their approach is the idea, borne out of the influential theories of Martin Conway (2001, 2005) and Endel Tulving (1983, 2002), that autobiographical memory is a multifaceted construct with two distinct components, episodic and semantic. Episodic autobiographical memory contains unique, personal events, situated in time and space and rich in sensory, perceptual, and affective detail. The semantic component of autobiographical memory preserves more abstract knowledge about the self and one's acquaintances (names, birthdates, places of residence, etc.). In addition, the two components differ not only in terms of what is stored, but also in how knowledge is expressed. A quintessential feature of episodic autobiographical memory is auto-noetic consciousness: the experience of reliving the past and mentally

travelling back in subjective time. By contrast, semantic autobiographical memory is characterized by noetic consciousness: the capacity to know general facts about personal events, without a mental journey through time or the subjective sense of remembering the past (Tulving, 1983, 2002).

An effective method for measuring both kinds of consciousness is the remember/know paradigm (Gardiner, 2001; Gardiner & Java, 1991), in which participants are asked to give either a “remember” response if their recollection of a given event is accompanied by access to information about the original encoding context, or a “know” response if recollection is achieved in the absence of such information.

With the passage of time, and with repeated encounters with similar experiences, the episodic “richness” of the original event is reduced (Tulving, 1985) and its memorial representation becomes more “semanticized” (Cermak, 1984). The state of consciousness accompanying recollection shifts from auto-noetic to noetic, and the subjective sense of remembering gives way to a growing sense of knowing (Conway, Gardiner, Perfect, Anderson, & Cohen, 1997; Tulving, 1985).

This shift in the subjective experience of remembering is also reflected in changing patterns of memory perspectives. Piolino et al. (2006) showed that, in comparison with real-life events of the relatively recent past (last 12 months), autobiographical memories from childhood or other remote periods are more likely to elicit “know” than “remember” responses and to be retrieved from the observer than the field perspective. Interestingly, this simultaneous shift is

correlated not only with the age of the subjects' memories, but with the age of the subjects themselves. That is, Piolino et al. (2006) also showed that, in comparison with participants aged 21-34 years, those in their 60s or older showed an increase in observer and know responses but a decrease in field and remember responses. Older subjects are more dependent on experimenter-provided cues or prompts to recall autobiographical memories, and less able to justify their recollections by recalling specific affective, sensory, or spatiotemporal details.

This pattern suggests confirms the existence of an episodic/semantic dissociation in autobiographical memory that applies to the aging of memories and rememberers alike. Nonetheless, although an older person's ability to recall specific autobiographical memories may be lessened, it is rarely lost altogether (absent Alzheimer's disease, frontal lobe damage, or certain other neurological disorders). In particular, Piolino et al.'s (2006) data indicate the preservation of self-defining memories in healthy aged subjects. Self-defining memories are a specific type of autobiographical memory whose attributes include "affective intensity, vividness, high levels of rehearsal, linkage to similar memories, and connection to an enduring concern or unresolved conflict" (Conway, Singer, & Tagini, 2004, p.504). The perpetuation of such highly accessible memories across a person's lifespan provides both "a personal, psychological, history of changes to the self" (Conway & Holmes, 2004, p.462) and a means for "older healthy people to 'travel into their past,' thereby ensuring a sense of identity and continuity" (Piolino et al., 2006, p. 522). In effect, the self-defining memories at

issue in Piolino et al.'s (2006) research represent benign analogues of the traumatic "landmarks" which we discussed earlier in connection with Berntsen et al.'s (2003) study of subclinical PTSD.

Purpose of recall and functional significance of memory perspective. If a person attempts to remember the feelings associated with a prior personal experience, he or she is apt to recall the event from a field perspective. If, however, the intent is to remember the facts or objective circumstances surrounding the event, then the person will probably adopt an observer's vantage point. This was the take-home message from Nigro and Neisser's (1983) final experiment, which established motivational set or purpose in recall as a determinant of memory perspective.

Taking their lead from Nigro and Neisser (1983), several investigators have examined the relation between event emotionality and memory perspective. For instance, Robinson and Swanson (1993, Experiment 2) asked undergraduates to recollect autobiographical events from various times in their lives involving work, school, romance, family, and other themes. Students classified each event according to its retrieval perspective (the options were field, observer, and neither) and rated its original and current emotional intensity (i.e., how the event made them feel when it took place vs. how they felt about it now). At a second session, held two weeks later, participants were given summaries of their previously recalled events and they rated each memory again on the same set of scales used in the first session. A random half of the participants were instructed to adopt the field perspective as they re-evaluated each event, and

half did so from an observer perspective. In this manner, each participant was assured of having a subset of memories for which the same perspective (field or observer) was adopted at each session, and a subset for which a different perspective was adopted (switching from field to observer or vice versa).

Though there was little change in rated emotionality (either original or current) when perspective remained constant, or when it shifted from observer to field, switching from field to observer produced a marked decrease in both measures. As Schacter (1996) has remarked, these results suggest not only that the emotional intensity of an event depends in part on how one goes about remembering it, but also that the emotions one attributes to the past sometimes arise from the way in which memories are retrieved in the present.

In addition to regulating or dampening down the subjective experience of emotion, retrieval from a third-person perspective alters the type of information contained in the subject's memory reports. To explain, consider a study by McIsaac and Eich (2002) in which undergraduates performed a series of physical tasks (e.g., shooting a toy basketball, shaping clay objects) as they walked around a large, distinctively decorated room. Later, while sitting in a small, sparsely furnished office, the students were instructed to recall aloud their experience of the original environment, and of the tasks they had performed within it, from either a field or an observer perspective. Transcripts of the subjects' tape-recorded recollections were prepared and coded for content by two assistants, both blind to recall condition and study hypotheses.

Analyses of the data disclosed several differences between memory reports obtained under field versus observer conditions. For instance, whereas field reports provided more details on the affective reactions, physical sensations, and psychological states that students experienced as they performed the tasks, observer reports included information about how the subjects looked, what they did, and where things were. More generally, field narratives generated from a first-person point of view contain more information “internal” aspects of the remembered events, but less information about “external” aspects. Thus, field and observer recollections differ in ways that are apparent not only to the rememberers themselves (as in the study by Robinson & Swanson, 1993), but also to other people (such as the blind coders in Mclsaac & Eich, 2002) with whom the rememberers share their recollections. These differences apply not only to the recall of innocuous incidents, such as shooting a basketball (Mclsaac & Eich, 2002), but also to the recollection of traumatic experiences, such as being struck by a baseball bat (Mclsaac & Eich, 2004).

If, as these results suggest, emotional regulation is one function of the observer perspective, then a second, related function is emotional distancing: the idea that the psychological and physical pain of reliving an aversive experience can be damped down by recalling the event from a eyes of a dispassionate observer (D’Argembeau & van der Linder, 2004; McNamara, Benson, McGeeney, Brown, & Albert, 2005; Williams & Mould, 2007; Wilson & Ross, 2003). This concept was introduced in connection with Berntsen et al.’s (2003)

study of students' recollections of trauma, and it will be revisited in a later section on clinical aspects of the field/observer distinction.

An important extension and elaboration of the distancing concept has been provided by Lisa Libby and her associates (Libby & Eibach, 2002; Libby, Eibach, & Gilovich, 2005; Libby, Schaeffer, Eibach, & Slemmer, 2007; Libby, Schaeffer, & Eibach, 2009). In a series of five studies, Libby et al. (2005) instructed participants to recall a given real-life event from either a first-person (field) or third-person (observer) perspective, and later asked them how much they changed since the event took place. In some studies,

In Study 1, university students who had been in psychotherapy were queried about their first treatment session; in Study 2, undergraduates remembered a time in high school when they felt socially awkward or embarrassed. In both cases, expectations for personal change are high and motivations for improvement are strong, which should bias participants to focus on the differences between their past and present selves. To the extent that the observer perspective affords greater psychological distance between past and present selves, participants instructed to recall the target events from that perspective should perceive greater self-change than their counterparts in the field-perspective condition. The results of Studies 1 and 2 confirmed this prediction.

In subsequent studies, Libby et al. (2005, p. 59) found that:

... whether a person focuses on differences or similarities between the present and past selves is crucial in determining

the effect of memory perspective on assessments of self-change: When people are inclined to focus on differences [e.g., I was socially awkward as a teenager, but not now as an adult], the third-person perspective leads to perceptions of greater self-change than the first-person perspective does, but when people are inclined to focus on similarities [e.g., I was a good athlete in high school, and I'm still good today], the effect of memory perspective on assessments of self-change reverses.

Together with the research reviewed earlier, Libby et al.'s (2005) indicate that memory perspective influences not only how we think and feel events of the personal past, but also our present assessments of how much we have changed since those events occurred (also see Santioso, 2008). Moreover, the influence of memory perspective seems to reach into the future. In an ingenious and opportunistic study, carried out on the eve of the 2004 U.S. presidential election, Libby et al. (2007) instructed a sample of registered Ohio voters to picture themselves going to the motions of voting from either a first-person or third-person perspective. The results showed that:

... people are more likely to adjust their self-concepts to match a desired behavior if that behavior is imagined from a third-person, observer's perspective rather than a first-person, experiencer's perspective. Subjects who imagined voting

from the third-person perspective saw themselves as more likely to vote and more motivated to overcome obstacles to voting compared with those using first-person imagery. Third person imagery also led subjects to anticipate feelings of regret and satisfaction consistent with internalizing voting as a personal norm (Kahneman & Miller, 1986). And subjects who imagined from the third-person perspective reported beliefs about the importance and impact of voting that were consistent with stronger self-identification as voters. Cumulatively, these effects on self-perceptions compelled persons in the third-person visualization condition to turn out in greater numbers on Election Day than did persons in the first-person condition. These findings suggest that self-focused imagery can affect meaningful behaviors by altering self-perceptions. Therefore, the injunction to “picture yourself” performing a desired behavior may, in fact, be an effective strategy for translating good intentions into practical actions (Libby et al., 2007, p.202).

The fact that memory perspective affects how we remember the past, and imagine the future, is particularly notable in light of recent neurocognitive evidence that mental time travel, in both directions, involves activation of a core brain system (Addis, Wong, & Schacter, 2007; Buckner & Carroll, 2007). This system includes the medial prefrontal cortex, posterior regions in the lateral and

medial parietal cortex, the lateral temporal cortex, and the medial temporal lobe including, most prominently, the hippocampal formation (Wagner, Shannon, Kahn, & Buckner, 2005). Delineation of this core system, along with new insights into the adaptive functions of memory, prompted Schacter and his associates (Addis, Pan, Vu, Laiser, & Schacter, 2009; Schacter & Addis, 2007; Schacter, Addis, & Buckner, 2007) to propose the constructive episodic simulation hypothesis, which holds that:

... the simulation of future episodes is thought to require a system that can flexibly recombine details from past events. This idea was put forward in an attempt to understand why memory involves a constructive process of piecing together bits and pieces of information, rather than a literal replay of the past; the suggested answer is that a crucial function of memory is to make information available for the simulation of future events. According to this idea, thoughts of past and future events are proposed to draw on similar information stored in episodic memory and rely on similar underlying processes, and episodic memory is proposed to support the construction of future events by extracting and recombining stored information into a simulation of a novel event (Schacter et al., 2007, pp.659-660).

As noted earlier, the fact that first-person perceptions can be transformed into third-person recollections attests to the reconstructive nature of episodic memory. We have also seen that the memory perspective adopted at retrieval affects how “bits and pieces” of stored information get pieced together to produce qualitatively different recollective experiences. Drawing on the constructive episodic simulation hypothesis, memory perspective would also be expected to affect peoples’ attributions about their past and present selves, as well as their attitudes and actions in the future. The work of Libby and other investigators confirm this expectation (e.g., Libby et al., 2005, 2007; Pronin & Ross, 2006; Wilson & Ross, 2003, while the ideas about mental simulation advanced by Schacter and his associates (Addis et al., 2007; Schacter & Addis, 2007; Schacter et al., 2007) invite inquiry into the neural processes that mediate field and observer perspectives. Some preliminary research on these processes will be reviewed shortly.

Individual, Group, and Cultural Differences in Memory Perspective

This section (estimated length: 2-3 MS pages) is under construction as of today (7 March 2011). Figure 2, shown on p.49, will be discussed in this section. The figure is included here simply as a place marker.

//// Figure 2 ////

NEUROSCIENCE ASPECTS OF MEMORY PERSPECTIVE

As we have seen, several studies have shown that events reconstructed from a field in contrast to an observer perspective are accompanied by more intense affect (e.g., Nigro & Neisser, 1983; Robinson & Swanson, 1993; Talarico, LaBar, & Rubin, 2004). Also, when rememberers are asked to describe their field recollections in detail (what happened, who was involved, etc.), their narratives contain more information about “internal” aspects of the focal events, such as physical sensations and psychological motivations, but less information about “external” aspects, such as how things looked and where things were (McIsaac & Eich, 2002; 2004; also see Robinson, 1996).

Though earlier experiments have established a connection between memory perspective and event emotionality, how this relation is mediated in the brain remains unknown. In a recent study (Eich et al., 2009), we used fMRI to investigate the neurocognitive basis of autobiographical memories while controlling for the visual perspective taken during memory recall--either a field (or first-person) or an observer (or third-person) perspective. Given that memories relived from a field perspective are experienced as more emotion-laden, relative to when the same event is recalled from an observer perspective, our goal was to identify the neural systems mediating this effect of retrieval perspective on memory emotionality.

The study focused a priori on two brain regions of interests. On the one hand, the amygdale--a pair of small almond-shaped structures buried in the medial temporal lobes--is strongly tied to basic emotional responses, both in real-

time and during memory retrieval (e.g., Cabeza & St. Jacques, 2007). However, our sense of emotion is also strongly associated with monitoring our own internal, visceral responses, such as noticing butterflies in our stomach when we are nervous, or that our heart is racing (e.g., Damasio, 2000). These interoceptive abilities have been linked to the insula, a region of cortex, folded deeply into a crevice separating the frontal and temporal lobes, thought to play a role in cognition, emotion, self-evaluation, and autonomic regulation (Augustine, 1996; Berntson, Norman, Bechara, Bruss, Tranel, & Cacioppo, 2010; Craig, 2009; Critchley, 2009). The key issue in the present study was whether one or both of these brain areas is involved in the greater emotionality of recalling memories from a field vs. observer perspective.

To address this question, participants were brought into the lab and asked to perform a variety of manual tasks--creating a piece of artwork, for instance, walking across campus on a mapped-out route. The tasks were designed to be physically engaging, attention demanding, and distinctive activities (especially for a laboratory study on memory); each task took about 15-20 minutes to complete, contributing further to its memorability.

One week later, participants were cued to silently recall the tasks (using pre-memorized visual icons) as they underwent fMRI scanning. In one condition, the tasks were recalled from a field perspective, and in a second condition they were recalled from an observer perspective. Following silent recall, participants gave a numerical rating of how emotional their memory was, as well as a verbal narrative report of the memory content itself, which we latter scored in terms of

various content categories (e.g., numbers of self-observations, physical sensations, and physical actions). These subjective ratings and narrative scores were used to compare how the contents of participants' memories varied not just with retrieval perspective itself, but with brain activity as well.

In terms of how retrieval perspective affected memory content, our findings paralleled earlier reports (McIsaac & Eich, 2002, 2004). Tasks recalled from the field perspective were associated with greater emotionality, affective reactions, physical sensations, and references to psychological states. In comparison, tasks recalled from the observer perspective had more descriptions of physical actions and third-person self-observations. Given these results from the behavioral measures (viz. subjective ratings and narrative scores), we next sought to determine whether there were any corresponding changes in functional activity in the amygdala and/or insula.

Memory perspective was found to affect activity in both brain regions, but in very different--and unexpected--ways. In our fMRI paradigm, brain activity during memory retrieval was always measured relative to a baseline or control condition: participants performed a simple visual search task in-between recalling each task. This made it possible to identify not only what brain areas increased in activity during retrieval, relative to the control condition, but also what brain areas decreased in activity. Examining how memories recalled from the field perspective changed neural activity, relative to the control condition, we found that activity in the right amygdala selectively turned on. However, when the same comparison was performed for memories recalled from the observer

perspective, we found that activity in both the left and right insula selectively turned off.

In other words, the greater emotionality of field vs. observer memories appears to be driven jointly by the turning-on of emotion-related circuitry during the former and by the turning-off of emotion-related circuitry during the latter-- circuitry in the insula that is otherwise on as a default state. Notably, however, these responses in the amygdala and insula did not track with behavioral measures of the memories themselves (i.e., subjective emotionality ratings or narrative content scores). When we performed additional analyses to determine which brain regions showed either positive or negative correlations with the behavioral measures, the responsive regions showed no systematic variation with memory content. Rather, their activity depended solely on the retrieval perspective itself, as if being controlled via an on/off switch.

These findings have a number of interesting implications, both in the memory domain and beyond. For one, the data suggest that adopting an observer perspective is tantamount to a literal disembodiment at the neural level. That is, when we choose to relive past events from a perspective outside our body, we shut down the neural circuitry in the insula that is central for monitoring our bodies' internal states. For another, research in social cognitive neuroscience has revealed that not only do we have a conceptual representation of "self" in the brain, but that it's critical for how we process events in the external world (e.g., Kelley, Macrae, Wyland, Caglar, Inati, & Heatherton, 2002). Building on this idea, our findings indicate that self-referential processing can also include

a physical or somatic sense of self that is distinct from any conceptual or abstract self-representation. Finally, there has been growing interest of late in understanding how people can exert control over their own brain activity, such as through meditation and mindfulness training. Our neuroimaging data imply that simply manipulating the visual perspective one takes during memory recall might be an effectively simple means by which to control our affective reactions to past events through the effect it has on emotion-related circuitry in the brain.

CLINICAL ASPECTS OF MEMORY PERSPECTIVE

Intrusive and distressing mental imagery is a key feature of many emotional disorders (Holmes & Mathews, 2010). A fascinating feature of imagery perspective is that people tend not to explicitly be aware of the perspective they are taking until asked. Striking examples of distortions of perspective occur across various psychological disorders and change of perspective can be a useful part of treatment. Memory perspective provides an insight into cognitive features that can maintain psychological disturbance in several ways. We shall begin by considering the relationship between perspective and negative emotion, and then consider other aspects such as interpretation and behavior, and then finally implications for positive affect.

In the previous section on neuroimaging, and earlier discussion of emotion regulation and distancing, we suggested that the visual perspective one adopts during recall may be a simple but effective means of controlling one's affective reactions to past events. Where better to avoid emotion than when thinking about distressing and traumatic events such as in clinical disorders? However,

as we will discover in the following sections, while there may be short-term benefits to reducing affect by switching to an observer perspective, there can also be long-term costs associated with doing this.

Observer Perspective, Emotion and Trauma: Trauma

When describing what had happened during a violent mugging, a patient reported that she saw herself self from the outside lying on the ground, “I look like a rag doll, I’m useless” (Grey, Holmes & Brewin, 2001). In clinical practice, patients who have experienced trauma sometimes report leaving their body and hovering above the scene of the trauma at the very time of the traumatic event, feeling distanced and unreal. This type of out-of-body experience/observer perspective during trauma is referred to as peritraumatic dissociation (Holmes, Brown, Mansell, Fearon, Hunter, Frasquilho, & Oakley, 2005), and is thought to be most prevalent after repeated trauma such as childhood sexual abuse though can also happen during single event trauma.

As we have discussed, the observer perspective has less impact on emotion than field perspective. An early indication that this was the case for clinical patients came from Mclsaac and Eich’s (2004) study of patients with post-traumatic stress disorder (PTSD)--individuals who have suffered a traumatic event in which they experienced or witnessed serious harm or threat to self or others (American Psychiatric Association, 2000). Such events include war, road traffic accidents, physical and sexual assault. The hallmark symptom of PTSD is flashbacks: intrusive image-based memories of the traumatic event that spring to mind unbidden. Mclsaac and Eich (2004) found that those patients who recalled

their traumatic events from an observer perspective described less anxiety than those adopting a field perspective. It is thought that using by the observer perspective, patients can help keep strong emotions at bay, at least in the moment. However, in the terminology of PTSD, this type of cognitive processing, as a way to reduce current affect, is also referred to as emotional avoidance (Ehlers & Clark, 2000). Emotional avoidance, as we shall is not necessarily a useful long term strategy for patients.

In another study of people who had experienced a traumatic event, emotional avoidance was found to be correlated with use of the observer perspective (Kenny & Bryant, 2007). Kenny and colleagues went on to conduct a longitudinal study in which they followed a group of people who had suffered a traumatic event for a year (Kenny, Bryant, Silove, Creamer, O'Donnell, & McFarlane, 2009). Soon after the trauma, recall of the event using an observer perspective was related to more severe PTSD symptoms. This was also the case one year later. Furthermore, those people who switched from using a field to an observer perspective at 12 months had worse PTSD symptoms. Taken together, these results suggest that remembering trauma from an observer perspective is related to both immediate and ongoing PTSD symptoms (Kenny et al., 2009). This suggests that far from being a useful long-term clinical strategy, using an observer perspective is associated with a worse prognosis.

A simplistic interpretation of the idea that observer perspective is less emotional than field perspective runs the risk of suggesting that using the former during trauma or when recalling traumatic events might be a good thing.

However, in line with the above findings, many clinicians would disagree with this interpretation. Indeed, a common component of cognitive treatment models of PTSD is the importance of emotionally processing rather than avoiding emotion associated with the event (Brewin & Holmes, 2003). The most effective treatment for PTSD--trauma-focused cognitive therapy (National Institute for Health and Clinical Excellence, 2005)--encourages patients to recall the worst moments in their trauma memory in detail, encouraging the use of field rather than observer perspective in so doing. A clinical goal of this treatment is to reduce pathological dissociation by helping patients with PTSD “get back in their bodies” and seeing events through their own eyes.

Observer Perspective, Interpretation, and Behavior: Social Phobia

Patients with social phobia report experiencing observer perspective imagery at those times they suffer from social anxiety (Hackmann, Surawy & Clark, 1998). For example, when in a social situation, such as speaking to a colleague, a patient might report seeing themselves from the outside, as red as a tomato, sweating profusely and looking like an idiot. It is clear here that the notion of observer perspective reducing emotion does not capture the full picture. Rather, in social phobic imagery, people see themselves not how they are actually performing but as their worst fears of how they might appear to others. They interpret what they see in their imagery as a sign they are really performing badly, which in turn causes them to be increasingly anxious (Wells, Clark & Ahmad, 1998). This continues to fuel a vicious cycle in which their behavior is now impacted (Spurr & Stopa, 2003); for example, rather than listening to their

colleague, a person with social phobia might start fidgeting to dab away their sweat, lose the thread of conversation, reply inappropriately, and so forth. Indeed, negative observer perspective images have been shown to play a causal role in social phobia (Hirsh, Clark, Mathews, & Williams, 2003).

The highly successful cognitive behavior therapy (CBT) for social phobia developed by David Clark and colleagues (Clark, Ehlers, Hackmann, McManus, Fennell, Grey, Waddington, & Wild, 2006) requires patients to drop their use of observer perspective imagery, and instead use field perspective when in social situations. That is, it encourages people not to imagine how they appear to someone else, but look out through their own eyes at the person they are speaking to.

Clinical research suggests that the use of observer perspective may be widespread in other clinical disorders too. Such imagery in agoraphobia include scenes of collapsing or being trapped (Day, Holmes, & Hackmann, 2004), in health anxiety of dying or having a terrible illness (Wells & Hackmann, 1993) and blood injury phobia (Wells & Papageorgiou, 1999), in body dysmorphic disorder of having ugly and disfigured body part (Osman, Cooper, Hackmann, & Veale, 2004), and so forth. Again, the distortions of reality that can occur when adopting an observer perspective image link thematically to the content of a given disorder, and to the necessary treatment strategy.

Observer Perspective and Positive Affect: Depression

Hitherto, we have discussed the impact of the observer perspective being less emotional than field perspective in terms of negative affect. What about

positive affect? Patients with depression report feelings of sadness and anhedonia, and claim they no longer enjoy experiences in the way they used to (American Psychiatric Association, 2000). Interestingly, increased depressed mood is associated with increased use of observer perspective (Kuyken & Moulds, 2009; Williams & Moulds, 2007; 2008). While observer perspective may protect against negative emotions such as anxiety, it may also serve to dampen down positive affect. Consistent with this suggestion, compared to non-depressed controls, people with depression indeed recall more positive events from an observer perspective (Bergouignan, Lemogne, Foucher, Longin, Vistoli, Allilaire, & Fossati, 2008; Lemogne, Piolino, Friszer, Astrid, Nathalie, Roland, Allilaire, & Fossati, 2006) which may be linked to an underlying genetic vulnerability (Lemogne, Bergouignan, Boni, Gorwood, Pélissolo, & Fossati, 2009). Further, depressed adolescents compared with never-depressed controls were more likely to recall their memories from an observer perspective (Kuyken & Howell, 2006). Kuyken and Howell suggested that seeing oneself from the outside is likely to highlight that one is falling short of some ideal standard, as when imaging positive events promote unfavorable self-comparisons and lower mood.

The clinical research reviewed above is limited by being correlational in nature, that is, it can reveal an association between observer perspective and reduced positive affect, but cannot show that the former causes the latter. In order to test this hypothesis, an experimental study was conducted by Holmes, Coughtrey, and Connor (2008). Non-clinical participants were asked to listen to

a series of descriptions about events. All 100 descriptions had positive outcomes, such as “You have been looking forward to your holiday. When you arrive at your destination you realize it is even better than you expected.” Participants were randomly assigned to one of three conditions: to focus on the words and meaning (verbal condition) of each description, imagine it from a field perspective (field condition), or imagine it from an observer perspective (observer condition).

Compared to both those who were given verbal processing instructions and those who used observer perspective imagery, participants who had imagined the positive events from a field perspective experienced significantly greater positive affect (also see Holmes, Mathews, Dalgleish, & Mackintosh, 2006). In fact, as predicted, both the verbal and observer conditions led to a deterioration of positive affect. These results suggest that imagining positive events from a field perspective is critical to improving positive affect.

It is also interesting that, in the above study (Holmes et al., 2008), observer perspective led not only to less positive affect but actual mood deterioration. One possibility is that unlike field perspective, which is like real perception/experienced reality, observer perspective lends itself to making unfavorable comparisons with the overtly positive material--for example, “seeing myself like that doesn’t look real, that would never happen to me.” While the equivalent appraisals for negative material may help reduce negative affect, unfavorable comparisons with positive material are known to reduce positive mood (Markman & McMullen, 2003). Thus, clinical reasoning suggests that

adopting an observer perspective when remembering or imagining positive information is one factor that serves to maintain depressed mood. On the other hand, recent work from social psychology suggests the picture may be more complex. There may be times when viewing oneself from a distance may be adaptive for depressed mood (Ayduk & Kross, 2010). However, negative and positive affect have long been held to be separate (Watson, Clark, & Tellegen, 1988). The implication of reducing observer perspective when considering positive material in clinical depression remains to be tested. Boosting happiness may require different strategies than reducing depression.

CLOSING COMMENTS

Recent years have witnessed a mounting research interest in the causes, correlates, and consequences of memory perspective. This surge is notable not only for the wealth of new findings that have been produced, but also for the variety of issues that have been pursued--How, for example, does the passage of time affect both the experience of recollection and the choice of memory perspective? Why does the adoption of an observer's vantage point amplify the perceived difference between past and present selves in certain contexts, but attenuate the difference under other circumstances? Do field and observer perspectives recruit different neural systems? And are their costs as well as benefits to recalling traumatic material from an observer's point of view?

It is possible, indeed probable, that the diversity of the memory perspective literature will continue to increase, as specialists in other areas of

psychological science--psychometrics and forensics, for instance--join the conversation.

Regarding psychometrics, a recent paper by Rice and Rubin (2009) seems certain to light a lively debate, among measurement and memory theorists alike, on how best to conceptualize and quantify the relation between field and observer perspectives. More to the point, are field and observer perspectives related in a mutually exclusive manner (so that a given recollective experience can be either field or observer, but not both), a complementary manner (more field means less observer, and vice versa), or an independent manner (field and observer perspectives can be experienced simultaneously, like feeling happy and sad at the same). Rice and Rubin make a strong case for independence, but the generality of their argument remains to be tested.

Regarding forensics, police investigators routinely administer to crime eyewitnesses the Cognitive Interview--a four-part protocol designed to elicit detailed information through different types of memory instructions (Geiselman, 1999). One part of the interview asks witnesses to describe the crime from an observer vantage point. Though the Cognitive Interview has been shown to yield significantly more information than standard methods of witness interrogation (Fisher, Geiselman, & Amador, 1989; Geiselman, Fisher, MacKinnon, & Hollon, 1986), the contents or characteristics of this extra information have not yet been explored.

In light of earlier comments concerning the influence of memory perspective on the narrative contents of recollections, it may be that some of the

memorial advantage of the Cognitive Interview over standard interrogation methods lies in the improved recall of information specifically related to the actions and appearance of the witness, the spatial layout of the area, and other physical details of the remembered scene that are salient from an observer's vantage point. If so, this would be of considerable value to police investigators, who prize precise recollections of physical details over an eyewitness' retrospective accounts of his or her emotional reactions or psychological states-- information that is especially accessible from the field perspective. Moreover, the results of Mclsaac and Eich's (2002) study suggest that memories retrieved from either vantage point are equally accurate: when tested for recall only minutes after completing a series of manual tasks, observer-condition participants made no memory errors, while their field-condition counterparts made a total of only two. Whether this equality holds even when the overall error rate increases, as it surely would if the retention interval were lengthened to several hours or even days, is one of constructive issues to be tackled in coming work on memory perspectives.

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Figure 1: Mean memory perspective ratings (1=own eyes, 7=observer) for autobiographical events from five different time periods. Source: Rice & Rubin, 2009, Figure 1. (Permission to reproduce remains to be sought, as of 7 March 2011.)

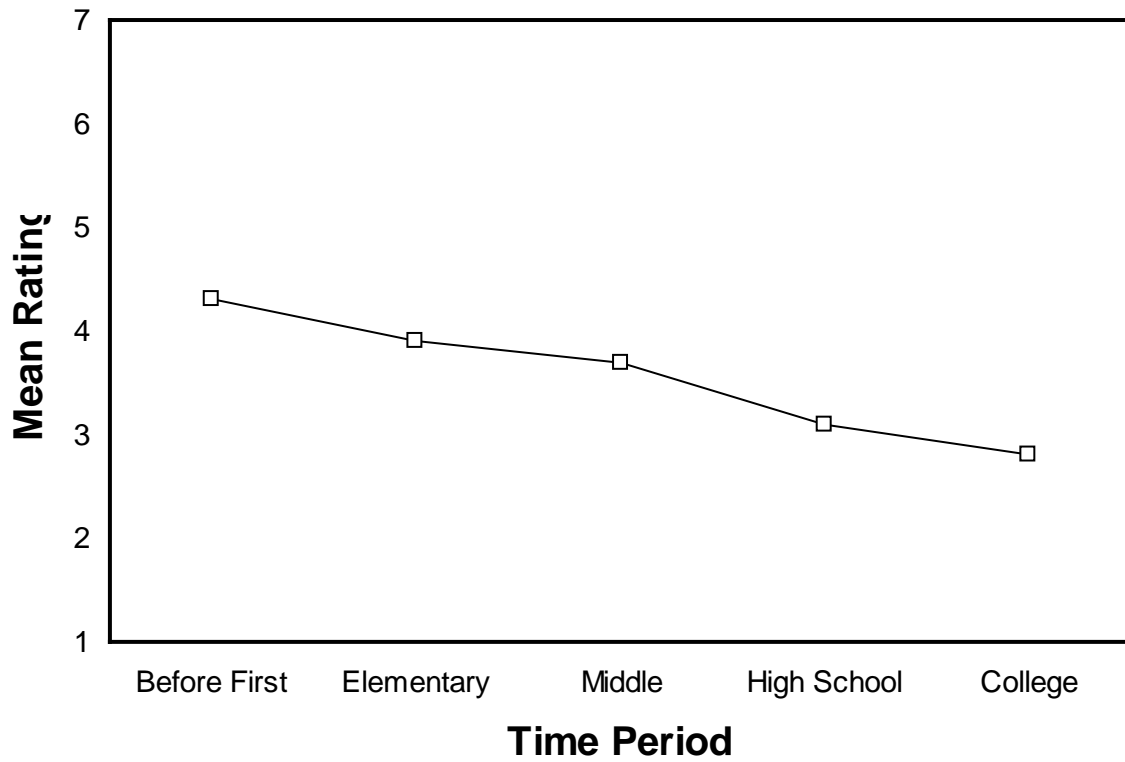


Figure 2: Median memory perspective ratings (3=entirely observer, -3=entirely field) recorded by four groups of participants as a function of situation type. Source: Wells & Papageorgiou, 1999, Figure 1. (Permission to reproduce remains to be sought, as of 7 March 2011.)

