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Adult attachment and phenomenological characteristics of autobiographical memory

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Adult Attachment and Phenomenological Characteristics

of Autobiographical Memory

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PhD Thesis

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2008

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Abstract

The aim of the studies undertaken for this thesis was to explore relations between adult attachment and autobiographical memory. Study One investigated how a self-report measure of adult attachment style related to young adults' ($N = 211$) recall of their earliest memories.

Dismissing individuals reported fewer negatively valenced memories than their counterparts in the secure and preoccupied groups. No attachment-related differences were found in the total number of memories (positive, neutral, negative) recalled, or individuals' ratings of the phenomenological properties of the memories. All three groups tended to rate negative memories more highly than neutral/positive memories on the phenomenological characteristics, although preoccupied individuals tended to show least differentiation on the basis of emotional valence.

Study Two investigated how attachment state of mind as assessed using the Adult Attachment Interview (George, Kaplan, & Main, 1985) related to autobiographical memory in a separate sample ($N = 65$) of young adults. Autobiographical memory was assessed in terms of recall (a) of one's earliest memory, and (b) of childhood memories in response to attachment-related and non-attachment cues, and this study also controlled for concurrent depressive symptoms and previous experience of trauma. As in Study One, the earliest memory and the cued memories were rated for their phenomenological properties, but data were also collected on latency of recall. No relation was found between A.A.I. classification and any characteristic of the earliest memory. For the cued recall of attachment-related memories, A.A.I. classification independently predicted vividness, emotional intensity at encoding and emotional intensity at recall, with dismissing individuals scoring

lowest and preoccupied highest. A.A.I. classification also predicted certain aspects of recall for non-attachment material. In particular, dismissing individuals rated non-attachment memories as less specific and less vivid than did individuals in the secure and preoccupied groups. A.A.I. classification has little impact on individuals' responses to the attachment-related and non-attachment memories. The only effect of A.A.I. classification was seen on ratings of specificity; somewhat surprisingly, dismissing individuals rated attachment memories as more specific than non-attachment memories, whereas secure and preoccupied individuals did not differ in their ratings of the two types of memory.

Study Three investigated how A.A.I. classification related to imagined future events in response to attachment-related and non-attachment cues in the same sample of participants who had taken part in Study Two. Controlling for gender, depressive symptoms and previous trauma (as in Study Two), the results of Study Three showed that A.A.I. classification predicted the reported vividness and self-relevance of attachment-related imagined future events. Compared with secure and preoccupied individuals, those in the dismissing group reported that future attachment-related events were less vivid. There was also a marginally significant trend for dismissing individuals to rate attachment-related future events as less self-relevant.

Comparing recall of previous past events with future imagined events, individuals across all A.A.I. categories were slowing at recounting future events than at recalling past events, and rated past events as more vivid and emotionally intense. However, it was future events that were rated as more self-relevant than past events. Study Three also found that there was greater concordance between ratings of past and future events with respect to specific phenomenological properties for insecure individuals than for secure individuals.

The results of the three studies reported in this thesis are discussed with reference to theoretical positions regarding the employment of pre-emptive and post-emptive defences against negatively valenced and attachment-related material in dismissing individuals.

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Declaration

The material contained in this thesis has not previously been submitted for a degree at this or any other university.

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Acknowledgements

Chapter 1: Approaches to Understanding Adults'

Autobiographical Recall

1.1 Introduction

The empirical investigation of autobiographical memory, which can be broadly defined as memory for personally experienced events, can be traced back to Galton's (1879) and Ebbinghaus' (1885/1964) experiments in which individuals were asked to recall a memory in response to various cue words. Freud's approach to autobiographical recall defined as 'biographical' (Robinson, 1986), implicated the recall of memories in personality development, as well as in conscious and unconscious motivation. On the basis of his classic experiments highlighting how one's pre-existing cognitive representational systems dictate the way in which novel material is recalled, Bartlett (1932) proposed a constructive rather than reproductive concept of memory. As Koriat and Goldsmith (1996) first pointed out, the study of memory structure in Ebbinghaus' laboratory experiments reflects the storehouse metaphor of memory, while Bartlett's influence echoes in the functional approach to memory which investigates how past information interacts with the present. Given its long history, and the numerous ways in which it has been studied, including neuroimaging procedures to investigate potential neurofunctional correlates, it is surprising that there is so little consensus on the ontogenesis of autobiographical memory, its structure, and its relation with other representational systems.

1.2 From a Unitary Conception of Memory to Memory Systems: Memory Taxonomies

Currently, memory is considered to be composed of several systems, the first of which was introduced by Hebb's (1949) suggestion that there is a difference between short-

term memory responsible for the temporary storage of information and a more enduring long-term memory. The study of amnesia during the 1960s and 1970s, and the possible dissociation in the impairment of short-term and long-term memory, further confirmed this distinction (Baddeley & Warrington, 1970; Shallice & Warrington, 1970). On the basis of incongruent results emerging within neuropsychological studies, a further division of short-term memory was proposed by Baddeley and Hitch in 1974 with the introduction of their tripartite working memory model.

A parallel development occurred in the field of long-term memory research. Tulving (1972) proposed that two long-term memory systems could be distinguished on the basis of being functionally separable in terms of the source and type of information that was stored: episodic memories are personally experienced events, whereas semantic memories deal with general facts that cannot be linked to specific events and dates in the rememberer's past. A further distinction in long-term memory is between declarative and procedural memory (Squire, 1987). The latter comprises learning as reflected by enhanced performance without awareness, such as priming, habituation, simple classical conditioning and the acquisition of motor skills or 'learning how'. These learning mechanisms are difficult to verbalise (Tulving, 1985), and are essentially perceptually driven. In contrast, declarative memory refers to conscious recall of both semantic and episodic memories and can be thought of as representational, implying that declarative memories can be independent of the current perceptual context. A final difference between the two forms of memory is that procedural memory does not preserve the distinction between recalling information and acting upon it (Hoerl, 1999).

In 1983, Tulving revised his original distinction. Tulving proposed that episodic and semantic memories could be distinguished in terms of the rememberer's ability to contextualise the memory in terms of it being an event which occurred in a particular space and at a specific time. Tulving argued that only episodic memories were contextualised in

this way, leading to the further elaboration (Tulving, 1983) that the semantic-episodic distinction involved differences in the coupling of memories to the conscious experiencing of recollection and a sense of self. Thus, episodic memory is accompanied by autonoetic awareness, which involves the ability to project one's sense of self into the past while remembering, and into the future while imagining plausible scenarios. Semantic memory on the other hand, entails noetic awareness, that is, the awareness of the existence of regularities, objects or entities in the absence of direct references to self. Finally, the procedural memory involves anoetic awareness, a consciousness which is limited spatially and temporally to the present. Tulving's (2000) current view thus highlights how episodic memory, unlike autobiographical memory, is not only defined by its content but by the rememberer's awareness of their own personal involvement in the event at the time of encoding. The assumption is that episodic memory is linked to the phenomenological re-experiencing of the past in the present (Baddeley, 2001).

1.3 Defining Features of Autobiographical Memory

More recently, others have proposed additional classificatory systems within autobiographical memory research. Brewer (1986) argued that autobiographical memory consisted of (a) single personal memories, (b) generic personal memories, (c) autobiographical facts, and (d) the self-schema. The specificity of a memory is here associated with the frequency of the to be remembered event and to the presence of imagery. An experienced autobiographical memory refers to a single episode which is recollected with imagery, while an autobiographical fact is a memory of a single event, in the absence of imagery. When an event was repeated, it will either yield a 'generic personal memory' if accompanied by imagery, or will become part of self-schemata, in the absence of images. This account, as with most definitions of autobiographical memory, highlights the importance of imagery and memory specificity.

More recently, Brewer (1995) and Rubin (1986; Rubin & Siegler, 2004) proposed that the principle defining feature of autobiographical memory is the re-living of the past event in the present. The extent to which a personally experienced event is being re-experienced is generally investigated by examining the phenomenological qualities that are associated with recalling an autobiographical memory. As Rubin (1986) noted, autobiographical memory studies rely "heavily on phenomenological reports...it is not recall but what is reported about the process of recalling that is considered as primary data" (p. 3). The phenomenological characteristics investigated tend to reflect hypothesised components of the proposed theoretical models of autobiographical memory as in Rubin's multi-componential framework (1995b).

Regarding the structure of autobiographical memory with respect to the semantic-episodic distinction proposed by Tulving, Conway and Rubin (1993) distinguished between levels of specificity of autobiographical memory knowledge. The content ranges from the most general and abstract "lifetime periods", which reflect a motivational theme (for instance early childhood, or relationship to mother), to the more specific "general events" which are limited to relatively brief temporal categories, linked to changes in goals (e.g., a separations from one's caregivers). Finally, a more recent component introduced by Conway et al. (2004) is the Life Story Schema, which is a generalisation of one's autobiographical history formed in relation to one's identity in a cultural context. In this model, a memory is therefore composed of 'episodic memories' intermingled with semantic knowledge.

Nelson (1977, 1986, 1999) and Fivush (2006) have proposed a model of autobiographical memory development from a social-cultural framework Although, as Fivush (2006) has argued, it may seem plausible that generalised representations (semantic knowledge) build on episodic event memories, recent research findings seem, on the contrary, to support Tulving's hypothesis (Bauer, 1997; Fivush, 1997). Children create a script on the basis of single events and tend to assume that similar future events will

conform to this skeletal generalised knowledge category, to the point that they focus their attention on the common elements across similar situations, ignoring possible differences (Farrar & Goodman, 1990). Pre-school children thus do not seem to have autobiographical memories (Nelson, 1986). This developmental trajectory of representation, although counterintuitive, seems adaptive both from an ontogenetic and a phylogenetic perspective, allowing children to rapidly create predictions concerning their social and inanimate environments (Fivush, 2006). It may be argued, however, that in the case of life-threatening events, and perhaps for all dangerous situations which are linked to the activation of the attachment system, remembering relevant single episodes would also be functional. In fact, from a different perspective and on the basis of schema theory, it has been argued that distinctive events are more accessible and vivid.

The model further postulates, that the complexity of the content of scripts increases with age and experience due to emerging capacities, including theory of mind (Fonagy, 2001), language, narrative abilities, and a sense of self. The scripts also seem to become more flexible, allowing for variations on basic event themes and outcomes (Fivush, 1984). Once again a hierarchical representational structure is posited with the highest levels containing abstract knowledge concerning the most likely participants and interactions and possible discrepancies, and the lowest levels consisting of specific episodic events. The precise constituents of autobiographical memory are therefore still debated, although all authors concur that the elements from which autobiographical memories are assembled consist of components organised at different levels of abstraction.

1.4 Constructivist Approaches to Memory Retrieval

The changes leading to the proposal of multiple memory systems led to a renewed interest in the encoding and retrieval processes and their interrelatedness. In 1983, Tulving proposed the encoding specificity principle, stating that the recall of an event is a function of

the degree of similarity between the encoding and retrieval conditions. Encoding and retrieval processes thus both determine explicit remembering. This implies that remembering will depend on the capacity of the recall cue to recreate the subjective perceptual experience of an event, "including whatever thoughts, fantasies, or inferences occurred at the time of encoding" (Schacter, 1996, p. 61). One instantiation of the encoding specificity principle is that memory will be state-dependent (for a review see, Eich, 1989), with recall depending on the establishment of an isomorphism between the state of mind at encoding and at retrieval.

It is now widely accepted that the retrieval cue does not simply activate stored components of memories, but rather recombines with an engram to create a recollective conscious experience which can be considered to be "an emergent entity" (Schacter, 1996, p. 70). As Tulving (2001) argued, "a good part of the activity of memory consists not in reproduction, or even in reconstruction, but in sheer construction. And constructed memories do not always correspond to reality" (p. 1507).

Schacter, Norman, and Koustall (1998) also suggested a memory framework on the basis of constructive processes whereby the features that compose a memory are not identifiable in a "literal trace or engram that corresponds to a specific experience" (p. 774.). As Schacter and Addis (2007) note, the constructive nature of memory also implies memory errors, which are arguably adaptive, allowing an individual to 'forget' unnecessary details (Bjork & Bjork, 1988; Anderson & Schooler, 1991).

In fact, the view of memory processes as constructive can be traced back to Bartlett's (1932) proposal that "remembering is not the re-excitation of innumerable fixed, lifeless, and fragmentary forms. It is an imaginative reconstruction, or construction, built out of the relation of our attitude towards a whole active mass of organised past reactions or experience..." (p. 213). It should be noted that the leading theories of autobiographical memory consider that memories are composed of elements derived from the original

phenomenal experience which in time are recreated on the basis of schema-based information (Brewer, 1986), and that the memories recalled through narratives introduce a further constructive element ensuring cultural and personal coherence (Barclay, 1996), the latter construct being further elaborated in Conway's model of autobiographical memory (see section, 1.5). In other terms, memory processes are reconstructions based on the condensation of perceptual elements, motives and assumptions which were active at the time the event occurred. At recall, the current contexts (internal and external) selectively modulate the reconstruction process (Johnson & Raye, 2000). The ability to recall and the content of recalled memories is necessarily linked to top-down knowledge about the world and is therefore assumed to be a constructive process. As Schacter and Scarry (2000) write: "Just as memories are shaped by beliefs, so too are beliefs shaped by memories" (p. 3).

1.5 "Memory" for the past and for the future

That the notion that autobiographical memory, is as much a process of construction as of recall, has led several researchers to argue that it should be conceived as mental time travel (Suddendorf & Corballis, 1997)[1]. Tulving (1983) suggested that the same system of episodic memory underlies the ability both to recall the past vividly and to imagine one's future, coining the term 'chronesthesia' (Tulving, 2002) for this kind of mental activity. Similarly, Damasio (1999), on the basis of neuropsychological evidence, distinguished between core consciousness and extended consciousness, the latter being a characteristic of human adults which not only allows autobiographical memories to be recalled, but grounds the sense of oneself as enduring throughout time. Edelman and Tononi (2000) also distinguished between two forms of consciousness, primary and symbolic. These authors link symbolic consciousness to self-concept development as well as to a sense of the past and future and consider the role of language and socialisation as being crucial. Schacter and

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[1] The distinction between imagination and memory can be reconducted to Hume's (1739/1978) proposal that memories are limited by the original event while imagination is not.

Addis (2007) also argued that the constructive nature of episodic memory implies that a function of this memory system is to simulate the future. Moreover, it has been proposed that this ability to plan for demands that may be encountered in the future on the basis of what has occurred in the past yields a selective evolutionary advantage (Schacter & Addis, 2007) that is likely to have played a key role in human evolution (Suddendorf & Corballis, in press). It is hypothesised that remembering the past and imagining the future draw on similar information stored within episodic memory, associating elements of a past experience flexibly to create novel scenarios that may occur in the future.

During the past decade a number of investigations have explored the symmetrical nature or continuity of remembering past events and imagining the future. D'Argembeau and van der Linden (2004) investigated the phenomenology of recalled memories and imagined events in the future, associated with positive and negative events. In particular, as in previous studies on past versus imagined events (Johnson, Foley, Suengas, & Raye, 1988), past events in general tended to be more detailed and rich in imagery than future events. Further, these authors found that the subjective experience of experiencing the past and future was a function of the emotional valence of the event. A subjective sense of 're-experiencing' the past or 'pre-experiencing' the future was greater for positive events than for negatively valenced events. The link between past and future has also been demonstrated in studies with amnesic patients, whose amnesia for past autobiographical events was associated with an inability to envisage the near future (Tulving, 1985; Klein, Loftus & Khilstrom, 2002). In the clinical literature, it has been repeatedly found that patients diagnosed with depression recall over-general memories (for a recent review see Williams et al., 2007). A similar dysfluence was observed in this clinical group when they were asked to imagine specific future personal events (Williams et al., 1996).

As D'Argembeau and van der Linden (2007) argue, mental representations referring to the past and future are composed of selectively encoded and recalled constituent elements. The selection processes are constrained by relevant motivations, beliefs and emotions which may have a signalling function as to the importance of the information. These authors further hypothesise that by simulating possible emotional situations, mental time travel promotes adaptation to the environment by indicating the situations which should be either avoided or approached (also see, Conway, et al., 2004). D'Argembeau and van der Linden (2007) also underline that mental imagery may mediate adaptive responses, by modulating emotional responses and thus regulating affect. Furthermore, there is evidence that recalling positive past events is a strategy through which negative mood can be regulated (McFarland & Buchler, 1998). Alternatively, negative events may be recalled to achieve a positive affective state (Sanna, 2000).

Finally, a further potential function of projection into the past and future is to maintain a positive sense of self over time (Baumeister, 1998). Support for this proposal comes from research indicating that, when asked to imagine future events, individuals tend to imagine more positively valenced events than those recalled from the past and that the time-latency for the generation of negative events, both past and future, was greater than for positively valenced events (Newby-Clark & Ross, 2003). Recent neuroimaging studies have also provided evidence for the temporal overlap, indicating that regions previously associated with episodic remembering (Okuda, Fujii, Ohtake, et al., 2003) show increasing activity when individuals are asked to imagine future events (Addis, Wong, & Schacter, 2007; Szpunar, Watson, & McDermott, 2007).

In summary, research on episodic memory tends to support the hypothesis that mental representations linked to conceiving oneself in the past and future are interdependent. However, the extent of this interdependence and the mechanisms responsible for it are still debated. For example, the fact that there is concordance between

the processes involved in autobiographical recall and in imagining event in the future does not to deny the inherent "causal asymmetry" (Suddendorf & Corballis, 2007, p. 302) of past and future; that is, that conjecture about the future can never be equivalent to knowledge of a previously experienced event. This difference was also discussed by Hoerl (1999), who stated that "in imagination, the subject's grip on the causal constraints governing the project she is engaged in may be quite minimal. Specifically, the particular circumstances in virtue of which her project meets these constraints may be quite opaque to her" (p. 331). According to Schacter and Addis (2007), it is precisely the overlap between memories and imagining future events that can account for errors and distortions. These authors argue that since remembering and imagining both involve constructive processes, the memory system is intrinsically "prone to error" (p. 774).

In a previous review paper, Schacter (1999) described various kinds of "memory transgressions" which can lead to either 'forgetting' due to a lack of memory-accessibility or distortions of memories (p .2)[2]. One of the sources of memory inaccessibility indicated by Schacter is 'absent-mindedness' (also see Reason & Mycielska, 1982). This entails a lack of attention during encoding[3] or retrieval process. A recently demonstrated phenomenon which exemplifies a superficial encoding process is so-called 'change-blindness' (Simons & Levin, 1997), which indicates that individuals do not tend to detect changes, recalling only general ideas or schematic information, but ignoring details. Schacter (1999) suggests that this aspect is essentially adaptive, since schemata are essential in the organisation of cognition (Mandler, 1979) and affect (Bucci, 1996; Schaefer & Philippot, 2005), as well as modulating memory retrieval and allowing the development of accurate expectations in novel context on the basis of past experiences.

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[2] Schacter (1999, 2000) described 'seven sins of memory'. However, only those sources of memory error which are relevant to attachment-related issues shall be considered.

[3] The literature on divided attention is relevant to this issue (see, Craik, Govoni, Naveh-Benjamin & Anderson, 1996).

Schacter also indicates the role of suggestibility, by means of which experiences suggested by others are construed as memories. The work of Loftus (Loftus, 1993; Loftus & Pickrell, 1995) on the role of misleading information was confirmed in a series of investigations carried out by Hyman and colleagues (Hyman & Billings, 1998; Hyman & Pentlands, 1996). In these studies, undergraduates were asked about a number of actually experienced or false childhood events on the basis of a questionnaire completed by their parents. Although participants generally remembered 80-90 % of actual events, on average 20-30 % described a false event in later sessions. Over half (56%) of the participants reported specific details of false events in the later sessions, and 44% described less vivid false memories. In a further study, Hyman and Billings (1998) found a positive correlation between the tendency to recall false memories and scores on the Dissociative Experiences Scale (Bernstein & Putnam, 1986) and on the Creative Imagination Scale (Wilson & Barber, 1978), which is a measure of the vividness of mental imagery. All of these studies indicate that suggestions made at the time of memory retrieval, but not at encoding, can lead to the construction of false memories. Another source of error is the retrospective 'bias' through which previous knowledge or schemas influence both memory encoding and retrieval. One aspect involves a consistency bias, the tendency to create a coherence between past and present, which was supported by a study of Scharfe and Bartholomew (1998) on temporal stability in couples' attachment security. In this study, most participants recalled their initial attachment evaluation in accordance with the current one. Similar effects were observed in studies regarding specific incidents rather than beliefs (Spiro, 1980), at the same time suggesting that the bias occurs when an event violates schema-based expectations.

Another type of bias refers to the influence of implicit or 'non-conscious' knowledge, also known as 'conceptual priming' (Schacter, 1996), on memory encoding and recall as well as behaviour. The evidence is based on neuropsychological data from amnesic

patients (Hamann, 1990; Mc Andrews, Glisky, & Schacter, 1987) or studies on stereotypes in the field of social cognition (for a review see, Banaji & Bhaskar, 2000).

Finally, Schacter (1999) indicates an aberration which is generally discussed in clinical literature, the persistence of memories, as for instance in the intrusive flashbacks of traumatic memory or rumination over negative experiences, which in his interpretation indicate the loss of control processes during the encoding of negative events. In this context, the investigations by Wegner and colleagues (e.g., Wegner & Erber, 1992) are relevant, which indicated that when subjects are asked to suppress thinking about a particular item, a rebound effect is produced. Rumination in individuals with a depressed mood has also been found to enhance the persistence of negatively-valenced memories. In a study, depressed and non-depressed participants were asked to ruminate on their current emotional state or to engage in a distraction task (Lyubomirsky et al., 1998). Subsequently, all subjects performed an autobiographical memory task which required the recall of specific memories. The rumination increased access to negatively-valenced memories for depressed participants. In animals, it has been demonstrated that the amygdala is involved in the persistence of fear and that stress hormones which influence its functioning modulate the effect (LeDoux, 1996). Neuropsychological studies on patients with lesions in the amygdala have also suggested a selectively impaired recall of emotional aspects of stories (Cahill, Babinsky, Markowitsch, & McGaugh, 1995). Memory persistence is, however, also essentially adaptive in allowing the recall of potentially threatening events, as previously discussed.

In Schacter's (1999) view, following Schooler and Anderson (1997), these distortions or omissions are variations on adaptive features of the memory system. In fact, the latter authors maintain that "memory's sensitivity to statistical structure in the environment allows it to optimally estimate the odds that a memory trace will be needed " (Schooler & Anderson, 1997, p. 219). This suggests that information which is not likely to

be needed in a particular environment should be 'forgotten'. In contrast, more recent and more frequently recalled events are more likely to be recalled (Schacter, 1999).

1.6 Autobiographical memory, motivation and the self[4]

Conway and Pleydell-Pearce (2000) introduced a model of autobiographical memory which focuses on the interrelatedness of access to personal memories, self-representations and motivation or goals (also see, Barclay, 1996) which may be used as a theoretically more coherent framework for considering attachment-related findings. By definition, and in contrast to other forms of long-term knowledge, autobiographical memories are intrinsically linked to the construct of a 'self' (Brewer, 1986). It has also been argued that this kind of memory validates the idea of self-continuity (Robinson, 1986). From the perspective of developmental psychology, Howe and Courage (1997) suggested that autobiographical memory requires an emerging sense of self (cf. Sutton, 2002). Conway & Pleydell-Pearce (2000) argue that current self-representations and goals influence memory construction, for instance by inhibiting memories that are in conflict with the self-representations. An autobiographical memory is here defined as a sensorially rich time-specific episodic memory embedded in a semantic context. These memories are considered to be transitory and dynamic mental representations, created from an underlying cue-sensitive knowledge base. It is suggested that activation arises and dissipates and only give rise to memories of which one becomes aware when the individual enters into a retrieval mode (Tulving, 1983), inducing a past-oriented state of mind.

Conway and Pleydell-Pearce (2000) elaborated on this idea by introducing the concept of the working self (derived from the concept of working memory), which supervises retrieval processes and evaluates potential events to be recalled. The working self in this model is believed to consist of goal-related processes. In its supervisory role, the

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[4] This section refers to a paper co-written with Martin Conway and Jefferson Singer (Conway, Singer, & Tagini, 2004).

working self has a two-fold function: Firstly, goals are formulated according to pre-existent autobiographical memories; secondly, autobiographical material is constantly revised on the basis of the achievement of goals. In addition, the working self can inhibit the recall of knowledge which conflicts with a goal or motivation. The model can thus account for specific memory dysfluencies that have been observed in clinical groups (Conway et al., 2000; Conway & Pleydell-Pearce, 2000; Conway & Fthenaki, 2000) by referring to inhibitory processes that may be active (or fail) at different stages of the retrieval process, according to the degree of goal-compatibility. Conway (2001) has also hypothesised that the persistent inhibition of goal-incompatible knowledge may lead to a permanent inhibition of the knowledge or of the direct access to goal-neutral or goal-positive knowledge. Persistent inhibition may also influence accessibility, but not the availability of knowledge, the inhibited knowledge may therefore continue to influence both cognitive-affective processes and behaviour.

Conway Pleydell-Pearce's (2000) Self Memory System model has been further elaborated by Conway, et al. (2004). The Self Memory System is considered to emerge from the interaction of an episodic memory system a working self and a long-term self. The long-term self is linked to more abstract self-related knowledge organised in the autobiographical knowledge base and a conceptual self. In this elaboration, goals are seen to "drive cognition" (p.494), and emotions have a signalling function in assessing goal attainment. In this work, episodic memories are also redefined, and in contrast with Tulving's previously discussed model, are considered to be short-term experience-near records of ongoing activities, generally represented by sensorial imagery. When these components are active, they induce autonoetic consciousness and the re-experiencing of the past, involving a disengagement from the present. These components can undergo rapid degradation or be integrated in long-term autobiographical knowledge. The long-term self is thought to be composed of an autobiographical knowledge base and a conceptual self structure. The

knowledge base is structured hierarchically, with specific events being embedded in more abstract general knowledge previously discussed (Conway, 1993).

A new component of the Self-Memory System includes the conceptual self, a semantic memory structure, consisting of socially constructed abstract knowledge about the self. It is defined as consisting of "non-temporally specified conceptual self-structures" (p.500) of which internal working models may be an instantiation. The conceptual self knowledge and autobiographical knowledge base information interact reciprocally, modulating each other's content and are in turn, connected to specific episodic memories. Changes in the conceptual self may influence access to the content of the autobiographical knowledge base, episodic memories and the long-term self. In this further extension of Conway & Pleydell-Pearce's model (2000), it is suggested that the creative use of autobiographical memories in imagination is constrained by a dialectic relation between two needs: "adaptive correspondence" and "self-coherence". The first is that a memory system needs to 'correspond' to a certain degree to experienced reality in order to be functional. The correspondence is guaranteed by the experience-near knowledge of the episodic system, with its sensory-perceptual information. On the other hand, memories need to be coherent with the more conceptual knowledge contained in the Long-Term Self in order to be meaningful. As Conway et al. (2004) specify, affective arousal may induce "a merging of the psychological present and 'remembered reality'" (p. 511), distorting the relatively accurate interpretation of current events. This second function has been invoked by the formulations regarding the functions of Internal Working Models, in particular as reformulated by Main in attachment theory, with its emphasis on narrative and representational coherence rather than on memory accuracy.

1.7 Rubin's model of autobiographical memory

In Rubin's model, (Rubin, 1995b, 1998; Rubin & Greenberg, 1998; Schrauf & Rubin, 2000) autobiographical memories are assembled from several component processes, attributed to separate cognitive systems. The suggested components are imagery, language, narrative reasoning and emotions.

As in Conway & Pleydell-Pearce's theory, and in Tulving's (1983) definition of autonoetic consciousness, a first fundamental component is imagery. Sensorial material is considered a defining feature of re-experiencing a specific, unique autobiographical memory. In fact, individuals tend to believe that their memories are more accurate when imagery is included in remembering[5] (Pillemer, 1992; Pillemer, Desrochers, & Ebanks, 1998), although this is not necessarily the case (Winograd & Neisser, 1992).

Two further components of autobiographical memory proposed by Rubin's model are language and narrative structure. Although few studies have investigated the interaction between memory, narrative coherence and emotion., fragmented narratives have been described in studies on traumatic memories (for a review see Dagleish, 2004). However, contradictory evidence has recently emerged (see for eg., Berntsen, Willert & Rubin, 2003). In fact, Berntsen and Rubin (2006) suggested that traumas, being unusual events, deviate significantly from schemata, and thus from expectations and would therefore probably be more easily recalled.

Several authors have argued that autobiographical memories are structured and perhaps stored in narrative forms, and in particular as stories (Robinson, 1996; Barclay, 1986, 1996). Schank and Abelson (1995) also postulated that "the content of story memories form the basis of an individual's remembered self" (p.1). Rubin (2003) claims that narratives organise autobiographical memories, structuring them temporally and providing goals (also see Nelson & Fivush, 2004). Habermas and Bluck (2000) have observed that

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[5] Historically, the distinction between perception and memory was made on the basis of the intensity of the imagery, or vividness (Brewer, 1995).

narrative reasoning, creates an overarching coherent life-story, relating autobiographical memories to a self representation. These authors indicate that autobiographical reasoning provides (a) temporal coherence by sequencing events in time, (b) causal coherence by relating life events to personality changes, (c) thematic coherence through the analysis of themes across memories and finally (d) a cultural sense of biography, which constrains the events to be included into a life story. As previously discussed, research on autobiographical memory development also underlines the importance of dyadic narratives in structuring the content and form of autobiographical memory in children (Nelson & Fivush, 2004). Several authors (Conway, 2002; Howe & Courage, 1997) claim that language merely allows memory content to be expressed, or reflects memory development but does not organise memory in children and adults. As Nelson and Fivush (2004) argue, it is difficult to counter this viewpoint through empirical evidence "because of the rather obvious dependence on verbal reports of much of the data related to autobiographical memory" (p. 493). Finally, as Stern (1985) observed, the emergence of language and of a narrative self implies that a hiatus is created between self and other, which can also lead to contradictions between the behavioural level and the associated explicit communication. Bowlby (1980/1998) postulated that the conflicting memories would then be encoded in different memory systems as will be discussed in greater detail in Chapter 2.

Another fundamental component of the model is emotion. Language and imagery-related affects are generally believed to operate independently from cognition and to influence the content or the structure of recalled memories, although the reciprocal relationship is unclear. In particular, research findings from eyewitness studies, flashbulb memories[6] and research on trauma suggest that affect actually favours the recall of vivid and detailed memories (Brown & Kulik, 1977; Christianson, 1992a, 1992b). Similarly, the context in which an emotional cue in presented in experimental studies tends to be

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[6] Flashbulb memories are vivid memories, defined as "memories for the circumstances in which one first learned of a very surprising and consequential (emotionally arousing) event (Brown & Kulik, 1977, p.73).

remembered to a greater extent when the cue is emotional rather than non-emotional (Dewhurst & Parry, 2000; Rubin & Friendly, 1986). A bias in recalling positive events rather than negative, named the Pollyana principle has been repeatedly observed (Matlin & Stang, 1978). However there is also evidence that negative although non traumatic emotional imagery can be recalled in greater detail than positive cues (Ochsner & Schacter, 2003).

In contrast, other studies have found that if an extremely negative event is witnessed, details are unlikely to be recalled (Christianson & Safer, 1996). Positive words and images have been shown to be more memorable (e.g., Ainsfield & Lambert, 1966). Diary studies have usually suggested greater recall for pleasant events (Linton, 1975; Wagenaar, 1986). A methodological problem of these studies is that although a valence effect has been consistently found, since most studies compared negative or positive memories with neutral ones, the results could therefore have been induced by the intensity of the affect rather than the valence (Talarico, LaBar, & Rubin, 2004). After reviewing studies on the intensity of emotion on memory recall, Talarico et al. (2004) concluded that the findings on an intensity of emotion effect seem more consistent and can account for the contradictions found in the valence studies. These authors investigated the effect of positive and negative memories as well as of affect intensity on various self-rated memory characteristics in a college sample. Their findings confirmed that the intensity of affect, had a greater influence on various phenomenological properties of the memories recalled than memory valence. In particular, intensity of affect accounted for a majority of phenomenological characteristics including memory vividness, the recollective quality of the memories, their specificity, the amount of rehearsal and narrative, and the associated emotion. However, emotional intensity did not account for the subjective sense of memory accuracy. The authors suggest that emotional intensity may actually increase attention to the features of the event during encoding.

1.8 Summary

Although as Brewer (1986) wrote: "There has been enormous confusion in the terminology used in discussions of autobiographical memory" (p. 32), the above-discussed models concur that autobiographical memory requires the binding or coalescing of various components. Although the models reviewed highlight different sub-components, including motivations, self-representations, emotions, narrative processes and imagery, however the authors agree that an autobiographical memory by definition is accompanied by recollective experience and should be specific to a particular episode. The models and theories discussed suggest that an autobiographical memory is constructed or reconstructed from its constituent elements, in relation to the present context which includes affective states and goals, and cues present in the environment. As a result, current theories of memory, as reviewed by Schacter (1999), also imply that, autobiographical memories are inherently vulnerable to errors and distortions because of their constructive nature.

Regarding the temporal functions of autobiographical remembering, on the basis of Tulving's hypothesis of multiple memory systems and the correlated forms of awareness, autobiographical memory has been widely considered to modulate the interpretation of present experience and to provide the raw material for simulating future events (Suddendorf & Corballis, 2007).

. In contrast to Tulving's proposal that semantic memories ontogenetically precede episodic memories, most accounts of the development of autobiographical memory suggest that episodic and semantic memories should be viewed on a continuum, with semantic memories constituting abstractions created from episodes (Barsalou, 1985; Conway, 2003). An autobiographical memory will thus consist of recollection-inducing elements (episodic memory components) and semantic or abstract knowledge (but see Nelson & Fivush, 2004).

Various other functions of autobiographical memory are implied in the accounts reviewed in this chapter. Since this kind of memory is intrinsically linked to the concept of

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self, self-coherence or continuity has been repeatedly suggested as a primary function (Barclay, 1996; Fivush, 1988; Habermas & Bluck, 2001). On the other hand, various authors have also underlined that the self-concept although influenced by the memories recalled, in turn restricts both encoding and retrieval of memories (Conway & Pleydell-Pearce, 2000).

Finally, as discussed, a number of empirical studies have investigated the dyadic construction of autobiographical memory during child development, and it has been claimed that the social function of autobiographical remembering is primary (Winograd & Neisser, 1992; Bluck, 2003). Further, although Conway and Pleydell-Pearce (2000) explicitly refer to internal working models as "an important part of the self", and despite the recent interest for individual differences in autobiographical memory (Tulving, 2003) the possible links between attachment and memory in adults have as yet remained unexplored in the field of autobiographical memory. Chapter Two, will discuss attachment theory and the construct of 'internal working models'.

Chapter 2: Adult Attachment and

Internal Working Models

2.1 Bowlby's concept of Internal Working Models

One of the basic tenets of attachment theory, stemming from Bowlby's psychoanalytic heritage (Bretherton, 1999); Fonagy, 1999; 2001; Bretherton, 2006), is that individuals construct representations or 'internal working models' of significant early relationships which shape subsequent social interactions. Thus, to a certain extent, internal working models provide a sense of continuity between the interpersonal past, present and future.

In the first volume of his attachment trilogy, Bowlby (1969/1997) reformulated the psychoanalytic theory of an internal world in more general terms and in accordance with biological principles[7], postulating that human beings elaborate models of their environments and of themselves as organisms which allow them to "conduct, as it were small-scale experiments with the head" (p. 81). The models are structured to reflect one's "experienced world", with Bowlby emphasising the role of 'actual reality' versus 'fantasy,' although he also conceded that the models should be capable of being "extended imaginatively to cover potential realities" (ibid.). In this volume, Bowlby defined the adequacy of the models as a function of their accuracy and thus predictive value, their internal consistency and finally their flexibility or complexity in being applicable to numerous situations. Another adaptive aspect of these models discussed by Bowlby is their openness to revisions in response to environmental or organismic changes, which he attributed mainly to conscious processing.

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[7] Although the work of Craik (1943) is usually invoked to explain the source of the 'internal working model' concept, Bretherton (1999) explains that Bowlby had not read the author.

Bowlby also suggested that models could become inadequate when they were partially or completely out-dated with respect to current reality, or when they were incoherent presenting "inconsistencies and confusions" (p. 82). He defined the function of working models in terms of the processing of "a novel plan to reach a set goal" (ivi). In terms of the Piagetian metaphor, it could be argued that the models needed to be relatively stable on the one hand, assimilating minor changes, but also capable of accommodating to high levels of discrepancy from the environment. As Bretherton (1999a) suggests, in this first formulation, internal working models were considered to be general representations, and were not specifically linked to attachment per se.

It is in the second volume on attachment that Bowlby (1973/1998) specified that internal working models contribute to the perception of events and predicting the future, and that their basic content consists of complementary relationship representations of attachment figures and the self. Therefore, according to Bowlby, models deriving from past interactions with caregivers create expectations that in turn influence how novel events are interpreted. Bowlby seemed to need to justify these hypotheses by presenting them as reformulations of the psychoanalytic concepts of good and bad objects and 'self-images'[8]. Bowlby further suggested that the experiences from which these models were constructed derived from both day-to-day experiences with attachment figures as well material that was verbally communicated rather than being personally experienced.

In the final volume of the trilogy, Bowlby (1980/1998) referred to Tulving's (1972) distinction between semantic and episodic memory systems. Bowlby underlined that episodic memory consists of autobiographical information based on "personal experience" while semantic memory is material stored contributing to "personal knowledge". A

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[8] In reality, equating 'internal working models' with 'good or bad objects' is somewhat misleading, for example, while 'internal working models' are essentially cognitive constructs, good and bad objects in most psychoanalytic theories, are dynamic-affective constructs. This desire to ground 'internal working models' in psychoanalytic theory may have been prompted by the criticism of his work within the British Psychoanalytic Society (see Fonagy, 1999).

clinically relevant corollary according to Bowlby is that multiple "images of parents and of self" can co-exist. In this formulation, he seemed to introduce a distinction between memories and working models: "Whereas memories of behaviour engaged in and of words spoken on each particular occasion will be stored episodically, the generalizations about mother, father and self enshrined in what I am terming working models or representational models will be stored semantically" (p. 62, italics added). In other ways, this passage suggests that internal working models proper are attributed to the semantic memory system in the form of abstractions and generalisations, while single event memories are stored separately. Although this formulation anticipated future authors' attempts to attribute components of internal working models to various memory systems, it also generated conceptual confusion. As Bretherton (2006) recently commented, "is not clear, however, why he [Bowlby] regarded semantic, but not episodic, memory as involved in the construction of internal working models" (p. 20).

According to Bowlby (1980/1998), the different sources of information in 'episodic and semantic storage' can give rise to discrepancies and conflict. One form is discussed in the case study of Geraldine, used to exemplify the existence of multiple 'selves' which resulted from defensive manoeuvres. In this case, memories and feelings associated with traumatic experiences induced an almost complete defensive exclusion[9], which created a separate and relatively inaccessible representational system. When discussing the case, Bowlby suggested that the patient's autobiographical memories (in the episodic system) are thus segregated or deactivated and remain unconscious. Bowlby is thus proposing that in extreme conditions, when attachment-related experiences are unbearably conflictual or when a child becomes aware of events which the parent wishes to conceal, the internal working models can be fragmented into one accessible model and a second which is excluded from consciousness. This latter model would be less functional, but adaptive to that particular

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[9] A concept that revisits, in information processing terms, Freud's concept of repression in terms of exclusion from awareness.

relational context. As Bretherton (2006) points out, this contradicts Tulving's (1972, 1983) theory, in which episodic or autobiographical memories are by definition accessible to consciousness. Bretherton therefore argued that it is more likely that the inaccessible model which provides "only fragmentary evidence of its existence" (Bretherton, 2006, p. 347) may be attributed to the procedural memory system.

In summary, Bowlby (1969, 1970, 1980 /1998) viewed internal working models as being composed of specific contents, aspects of the caregiver and self and the associated affect. In Bowlby's view, internal working models also have process qualities by influencing the perception, interpretation and memory of interpersonal experience, and functionally create expectations in the present and of the future which are isomorphic with the past. However, as Grossmann (1999) argued, the concept as formulated in the trilogy needed specification and further elaboration, in part due to the limits in conceiving representational models at the time (Nelson, 1999; Fivush, 2006). In particular, as Bretherton has repeatedly (1991, 1999, 2006) suggested that revisiting the concept of the internal working models by considering relevant memory research, and in particular, the roles of both the episodic and procedural memory systems.

2.2 Further developments of the concept of internal working models as multiply encoded hierarchical structures

Bretherton (1985, 1990, 1991, 1992, 1999, 2006) further elaborated on the structure of internal working models, defining them as a useful "conceptual metaphor" (1985) and referring to theories derived from current social and cognitive psychology. Bretherton (1992) first referred to the implications of several memory systems for internal working models in terms of the distinction between short-term memory and long-term memory, and the role of prototypical sequences of events or scripts (Schank & Abelson, 1977) in storing and organising material within long-term memory. Schank (1982) had subsequently

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proposed that scripts, rather than being simple event-representations, were hierarchically organised constituents of long-term memory. He suggested that autobiographical memories were processed in terms of micro-components which differed according to categories such as motivations, affective aspects, spatial, temporal, and causal elements. These scripts could then be reassembled into vaster scripts based on generalisations across various episodes. Thus different levels of script co-exist in a hierarchical structure ranging from lower experience-near interactive scripts to more abstract general scripts. In this view, autobiographical events come to include new knowledge by means of constant dynamic processing, due to the recombination of old scripts or their sub-components. A more flexible view of autobiographical memory is thus provided, which includes the remodelling of experienced events according to different categories and levels which also take into account the current context.

The distinction between short- and long-term memory and the use of scripts within long-term memory allowed Bretherton to go beyond Bowlby's episodic-semantic memory subdivision, and to construe internal working models as hierarchically structured schemata. Bretherton (1992) integrated Schank's (1982) script theory with Epstein's (1973, 1980) self-concept hypothesis to reconceive internal working models. An internal working model of attachment could thus be conceived at a basic level of specific experienced relationships and events concerning significant attachment figures, as well as higher levels of abstract general assumptions relative to attachment which include Bowlby's representations of the self and the caregiver. These different levels are proposed to be interrelated, influencing each other reciprocally. In this view, defensive processes would induce interference at the different levels of abstraction during internal working model construction, rather than creating two separate contradictory internal working models, each confined to a separate memory systems as Bowlby (1980/1998) had postulated. Furthermore, the levels within the internal working model can differ in the extent to which they are accessible to consciousness; some

may have been processed and therefore organised within the internal working model only at a procedural level. As Pazzagli (2002) noted, Bretherton's view of internal working models becomes fully compatible with Tulving's concept of memory systems, since both authors conceive of memories as being hierarchically organised and accessible to consciousness to various degrees. A memory can be excluded from consciousness because it is incompatible with current representations, generating conflict, or because it was processed at a procedural level and therefore never became conscious. Bretherton and Munholland (1999) also underlined how defensive processes may not only 'exclude' information, but may reinterpret events according to current internal representations and contexts.

In his early work, Stern (1985) had also proposed a model in which experienced episodes of dyadic interactions are "averaged" and generalised to form representations known as RIGs (p.97). Stern further suggested that RIGs "can be conceptualised as the basic building block from which working models are constructed" (p.114). The author noted however that RIGs are not exclusively bound to attachment-related experiences, but rather concern vaster motivational aspects. Interactions experienced between child and caregiver are encoded as specific episodes comprising affective, motivational, cognitive, perceptual and motor elements. Similar specific episodes are then organised into prototypes, which in turn create functional categories or scripts. In his later work, Stern (1994) also describes narrative models defined as the history or explanation of internal working model to self or a significant other, implying that non-verbal components of the internal working model can be translated into verbal ones. As such, non-verbal interactions are placed into a broader context, since narrative models are socially construed and therefore contain elements not derived from personal experience. Incoherence in models can occur either during the assembling of representational moments or scenes, or between the unconscious internal working model and the narrative models. For Stern (1992), internal working models are not

merely isomorphic with the original experience (as for Bowlby and Bretherton), but a co-construction of 'objective reality'.

Another author who articulated Tulving's (1972/1983) memory systems with the concept of internal working models was Crittenden (1990). For Crittenden, a child's attachment behaviour reflects procedural knowledge, indexing the infant's actual experience. As in Bowlby (1980/1998), semantic memory contains generalisations about the attachment relationships derived from actual events and from parental communications. Crittenden also postulated that the distortions which Bowlby had discussed in terms of defensive exclusions may be attributed to failures in the encoding and retrieval processes. She further acknowledged that in theory, the content of the memory systems may diverge due to differences in "ability, willingness, and interest in comparing procedural, semantic, and episodic memories and the associated internal representation models" (Crittenden, 1990, p. 264). In this case, the models would require processes of integration, which may be assumed to occur consciously possibly resulting in the creation of a "new meta-model" (Crittenden, 1990, p. 265).

Crittenden (1995) also postulated that the different memory systems are associated with different conditions: procedural memories guide preconscious everyday behaviour, attachment related problem-solving is linked to semantic memory, while highly arousing situations access episodic memories. In secure individuals, there are few discrepancies among the memory systems, and internal working models are open to revision and updating due to these individuals' high levels of metacognition (Crittenden, 1995). While insecure individuals' internal working models may be internally inconsistent and are less able to accommodate new information. Finally, Crittenden proposed that, while semantic memory may be distorted by a caregiver's misleading interpretation of events, episodic memory

biases could be due to interference from unresolved affects (Crittenden, 1997). Her position on this issue is thus in line with Bowlby's (1980 /1998) position.

The development of attachment representations was also extended by Fonagy (2001). The constituents of attachment representations, based on expectations of interactive patterns with the caregiver, develop during the first year of life. These initial schemata are assumed to operate at a procedural level. Subsequently, general and specific memories of attachment-related interactions are encoded, which in turn, by coalescing into autobiographical memories, become organised in an overarching autobiographical narrative. Finally, Fonagy proposed a further representational development of attachment representations which entails the ability to think about one's own mental states and those of others and to distinguish between the two. Fonagy thus also highlights the quality and levels of processing of internal working models rather than their content.

From a cognitivist perspective, Spangler and Zimmermann (1999) also proposed a developmental sequence of the ontogenesis of internal working models. At birth, innately-endowed basic components of the attachment system exist, operating on a reflex level. It is on the basis of the interactions with caregivers that the child then develops attachment figure-specific internal working models. These models once again are proposed to function at procedural level and are thus not accessible to consciousness, guiding behaviour implicitly and not on the basis of representations. It is only in the subsequent phase of internal working model organisation, when newly developed cognitive elements are integrated with the behaviour-based models that explicit representations of the caregiver, and of the self, emerge. The models are believed to increase in complexity and in accuracy during further developmental phases. Finally, Spangler and Zimmermann speculated as to the interactions between the different levels. As they observed, most research in attachment assumes that internal working models emerge and replace the previously constructed

behavioural ones during different developmental stages. In this sense behavioural measures of attachment such as the Strange Situation (Ainsworth, Blehar, Waters, & Wall, 1978) would tap into the procedural models, whereas representational measures would access the more complex declaratively organised internal working models. However, Spangler and Zimmermann also suggest two alternative organisational principles for attachment representations. Firstly, lower levels may be completely integrated into higher level internal working models. Alternatively, the lower level behavioural models could form the basis for more sophisticated internal working models, but the two types of model would continue to co-exist as relatively independent systems. Moreover, the less sophisticated or lower-level forms could prevail in stressful conditions. This latter proposal contrasts with the generally held view that declarative knowledge intervenes when procedural knowledge is insufficient to guide behaviour. A possible explanation is that these authors consider that defensively excluded emotions are processed in procedural memory. These authors focus on the emotion-regulation function of internal working models , which depends on the fluid coordination of the various levels of processing, which may fail leading to incoherence in the perception (at a procedural level) or the communication of emotions (at a declarative level).

All the authors discussed thus far have proposed a multi-level view of internal working models, based on the emergence and co-existence of internal working model components which can be attributed to different memory systems. These views thus diverge from the developmental sequence proposed by Tulving (1972/1983), who suggested that episodic memory development is subsequent to and dependent on semantic memory (also see Nelson, 1999; Bretherton, 2005). In contrast, Crittenden, Stern and Bretherton suggest that abstract generalised knowledge evolves from primary specific event memories, with bottom-up processes preceding and constraining the top-down processes.

2.3 Assessing Internal Working Models: The Adult Attachment Interview

While the researchers discussed above have made substantial theoretical contributions to our understanding of internal working models and their relation with autobiographical memory, Main's major impact on the field has arisen through the design of an instrument capable of tapping into an individual's internal working models of attachment relationships: the Adult Attachment Interview (A.A.I.).

The A.A.I. (Main, Kaplan, & Cassidy, 1985) is a semi-structured interview in which individuals are asked to describe their childhood experiences with attachment figures, with specific questions relating to early separation, feelings of rejection and any experiences of loss. Main, et al. (1985) revisited the concept of internal working models , defining them as "a set of conscious and/or unconscious rules for the organization of information relevant to attachment and for obtaining or limiting access to that information…regarding attachment-related experiences, feelings and ideations" (pp.66–67). This redefinition extends the non-verbal correlates of the internal working model to individual differences in representations which organise and regulate cognitive and affective processes. It is also implied, similarly to the socio-cultural tradition, that since internal working models are structured on the basis of social and emotional interactions with the caregiver, representational processes are in part structured in the context of the dyad.

The A.A.I. is structured so that different questions tap different memory systems, some being designed to cue semantic autobiographical memories, and some episodic autobiographical recall. In the A.A.I. coding system, Main and Goldwyn (1998) operationalised the criteria for classifying individuals as insecure in terms of discrepancies between the semantic and episodic memory systems. During the A.A.I., subjects are initially required to provide a general description of childhood relationships to parents, and then to choose 5 adjectives to describe their childhood relationship with each parent. The adjectives are then used as cues for the retrieval of specific episodes. In part, the interview can

therefore be viewed as a form of autobiographical memory test. Subjects generate the cues with which to recall memories of specific incidents, in relation to a certain lifetime period (childhood) and a specific theme (attachment relationships).

Various questions follow on the subject's behaviour in circumstances in which the attachment system is presumed to be particularly active (when the subject was upset, hurt or ill, or separated from attachment figures during childhood). Subsequent questions refer to the ability to evaluate one's childhood experiences (e.g. the impact on one's development or reasons for parent's behaviour). A series of further questions probe potentially traumatic experiences and significant losses. The final part of the interview concerns present relationships to parents and future relationships to the subject's children.

In order to be analysed, the transcript must be audio-taped and transcribed verbatim. Scoring (Main & Goldwyn, 1998) is carried out on 5 nine-point "experience scales" which rate the inferred behaviour of parents during childhood (the degree of loving, rejecting, neglecting behaviour as well as role-reversal and pressure to achieve) and on 9 nine-point "state of mind scales" which assess the subject's current "state of mind" with respect to attachment. The state of mind scales include "idealisation", defined as a discrepancy between the positive semantic descriptions and the episodic memories recalled; "insistence upon inability to recall" childhood experiences, including documenting eventual traumatic memory loss; indices of present "involving anger"; "passivity" or vagueness of discourse, assumed to imply involuntary shifts of attention; active derogating dismissal of attachment related experiences; "metacognitive monitoring" referring to the ability to reflect on one's experiences, to control and monitor one's thought processes; "fear of loss" which indicates an unfounded fear of loosing one's child; "coherence of transcript", based on the internal consistency of the narrative and collaboration; and finally "coherence of mind" rating the coherence of thought processes such as belief systems (contradictions and lack of memory are also relevant here). Despite the fact that adult's have disparate experiences with different

attachment figures, and thus have different internal working models for each relationship, a single classification for an overall state of mind can be assigned, which reflects the general cognitive and motivational organisation of one's experiences reliably to the transcript (Main, 1995). Judgements are made principally on the basis of the coherence and plausibility of the narrative rather than on the content of the retrospective reports or the veridicality of memories (Main and Goldwyn, 1998). The state-of-mind scales are thus more strongly related to final classification status than the experience scales (De Haas et al., 1994).

The classification consists of 3 main organised categories (each of which is divided into further sub-categories) which indicate a single coherent strategy to the interview task (Main et al., 1985). Two additional categories involving a local disorganisation of discourse (Unresolved/U) when discussing traumatic experiences, or failure to maintain a strategy in the interview as a whole (Cannot Classify/CC) have been identified (Hesse, 1996).

Transcripts are classified as Secure-Autonomous (F) when the presentation and evaluation of attachment-related material is coherent and internally consistent. The speaker's attention moves flexibly between memory recall and interviewer queries. A constructivist position is assumed with respect to the past and its effects on current functioning (the subject may for instance indicate that her memories may be inaccurate) (Main, 1993). Transcripts are classified as Dismissing (Ds) when discourse is aimed at minimizing the importance of attachment related experiences. The prototypical DS1 sub-category is characterised by a marked lack of memory for episodes and/or discrepancies between abstract positive descriptions and specific memories. The Ds2 individual may access negative childhood memories but these are belittled, the self seems untouched by negative attachment related experiences. The Ds4- category has been derived empirically and stems from indications of a fear of loosing one's (real or imagined) child that cannot be accounted for. It has been hypothesised that this category assignment reflects a background in which loss has occurred in a subject's family, but has been concealed (Main & Goldwyn,

1998). Transcripts are classified as Preoccupied or Entangled (E) when the narratives reveal an excessive and confused (E1) or angry preoccupation (E2) with attachment figures or attachment-related events. The preoccupied individuals' sense of identity is anchored to the family (E1/E2) or to traumatic experiences (E3). The E3 sub-category is assigned when repeated descriptions of traumatic experiences invade the discourse, and there are repeated source memory difficulties. The interviewer has the impression that the subject cannot control or shift attention from traumatic events or the subject may be overwhelmed by a distressing lack of memory for childhood (Main & Goldwyn, 1998). In general, the preoccupied speaker cannot focus on the interview task, seems absorbed by the memories recalled and unable to provide "an objective overview at the semantic or abstract level" (Main and Goldwyn, 1998, p.169). Transcripts are additionally classified as Unresolved or Disorganised (U) when there are indications of a brief mental disorganisation during specific discussions of potentially traumatic events (death of significant persons or abuse). Disorganisation is indexed by "lapses in the monitoring of reasoning", such as violations of space and/or time relations or of physical causality, or attempts to manipulate thought processes, and "lapses in the monitoring of discourse" such as intrusions of memories or imagery. A final Cannot Classify (CC) category has been introduced to indicate transcripts that reflect a global or marked disorganisation of discourse, and which escape other classifications. A basic assumption (Main, 1991) of attachment theory is that the child's caregiver-specific internal working models coalesce into a unitary model or "state of mind", which is then reflected in the single discourse strategy adopted during the A.A.I. The CC category indicates the simultaneous presence of two incompatible states of mind (dismissing and preoccupied) or a total breakdown in strategy.

2.4 Internal working models and autobiographical memory

Conway and Pleydell-Pearce (2000) postulate that IWM may influence memory accessibility by inhibiting the retrieval of memories which are discrepant with the representations of self and other, thus suggesting that the selective remembering of insecurely attached individuals may be due to post-emptive defences. Access to elements of the knowledge base during the search and evaluation processes would thus be facilitated or constrained by the IWM. However, it is also possible to assume that the working self and its long-term components modulate attention, without requiring conscious processing.

As previously described, Hesse (1999) indicated that the A.A.I. requires two simultaneous processes: the ability to recall specific memories and focusing on the current interview-context by narrating a coherent and understandable life-history. This description is echoed in Conway et al.'s (2004) proposal that the states of mind with respect to attachment and the associated modes of recalling memories may reflect different relations between self-coherence and adaptive correspondence. The secure state of mind, in analogy with the child-caregiver interaction as observable in the Strange Situation, and with the flexible representational states postulated by Bowlby (1980 /1998) and Bretherton (1999), can oscillate between engaging with the past and present. It is expected that the two demands are met fluidly The memory recall of insecure states of mind may reflect the overriding need to maintain self-coherence, by assimilating new experiences to known patterns, thus creating as Main (1995) wrote a subjectively experienced "secondary felt security" (Main, 1995, p. 452). The conceptual self-structures remain relatively impervious to ongoing experience, similarly to Bretherton's view that IWM of the insecure individuals may be less organised and updated (Bretherton, 1992).

In the case of the preoccupied state of mind, the lack of adequate regulation of heightened affective states observable in the Strange Situation may have its counterpart in

the processing of memories. The control processes of the working self seem inadequate leading to a lack of constraints on the working self. Conway et al., (2004) suggest that in these cases past experience leads to a disengagement from the present, possibly because original working self goals are still active. Past experiences overwhelm individuals with a preoccupied state of mind, compromising their ability for adaptive correspondence.

The dismissing state of mind, developed in a dyadic context which is assumed to have been characterised by the rejection of attachment needs, attention is deflected from attachment issues, Conway et al., (2004) postulate the existence of inhibitory processes of the working self which disrupt access to the autobiographical knowledge base, and this may occur at both the encoding and retrieval phases of events. Episodic memories which are in conflict with the abstract representations of the long-term self may in fact not be encoded due to processes similarly described by Sullivan (1953) as 'selective inattention' (Sullivan, 1953) to attachment-related episodic memories. These memories are lost, not having been sufficiently integrated in the knowledge base. On the other hand, as in the case of depressed patients, may be due to inhibitory processes of the working self, dysfacilitating access to the autobiographical knowledge base and to episodic memory during retrieval (Conway & Pleydell-Pearce, 2000).

Further, similarly to Bowlby's (1980/ /1998 concept of segregated systems, Conway and Pleydell-Pearce's (2000) model endorses a dual-process account of the relation between emotion and memory recall (also see Brewin, Dagleish, & Josephs, 1996) of traumatic memories. In this case, it is postulated that emotional aspects and non-emotional aspects of memories can be represented in separate memory systems, a verbally accessible one, which can be accessed voluntarily, and a system which can only be accessed in terms of imagery and is cued unconsciously.

2.5 Aims of this study

It is striking that, while theoretical attention has been focused on the relation between autobiographical memory and internal working models of attachment relationships, in the attachment field, this topic has been neglected in terms of empirical research. Though a small number of studies have addressed links between attachment and autobiographical memory in children (Belsky, Spritz, & Crnic, 1996; Etzion-Carasso & Oppenheim, 2000; Farrar, Fasig, & Welch-Ross, 1997), all assessed attachment security at the behavioural level, meaning that their results are less relevant to the relation between internal working models and autobiographical recall. Similarly, as discussed in detail in Chapter Three, the vast majority of the studies involving links between autobiographical memory and attachment in adults have assessed security using self-report measures that fail fully to tap into the unconscious functioning of internal working models.

The main aim of this study is thus to present the first data on the relation between internal working models of attachment relationships and individuals' recall of various types of autobiographical material. In meeting this aim, the thesis addresses a number of important questions. How does the mode of assessing adult attachment influence the pattern of results observed on autobiographical memory tasks? To what extent does the internal working model relate to assessments of individuals' more general autobiographical recall? Do individual differences in adult attachment impact exclusively on recall of emotional material or formative early experiences from one's own life, or is their influence more pervasive? Is there evidence to suggest that internal working models play a role in our ability to conjecture about the future as well as our ability to recall the past? To attempt to answer these questions, the thesis reports on two empirical studies on the relation between adult attachment and autobiographical memory, the first of which assessed attachment using a self-report measure, while the second employed the A.A.I..

As shall be discussed in greater detail in Chapter 3, there is a conceptual difference between the construct of attachment derived from retrospective narratives of childhood experiences with parents as the A.A.I, and the investigation of attachment security by focusing on current adult social relationships as measured by questionnaires (see for example, Crowell & Treboux, 1995; Furman & Flanagan, 1997; Stein, Jacobs, Ferguson, Allen & Fonagy, 1998). A significant aspect is that the A.A.I. protocol is postulated to measure largely unconscious defensive processes while the self-report measures investigate conscious beliefs about current relationships. Bowlby himself described defensive processes ranging from the unconscious to the conscious, as Crowell, Fraley & Shaver (1999) argued, but self-reported beliefs may reflect defensive processes themselves. For instance, a clear acknowledgement of relationship difficulties leading to an insecure classification on the self-report instruments would on the contrary be expected of secure participants on the A.A.I. with difficult past experiences. However, although the construct of attachment is held to differ, both traditions propose that differing attachment representations modulate information-processing and memory encoding and retrieval (Faley, Garner & Shaver, 2000; Hesse, 1999).

Chapter 3: Relations Between Early Childhood Memories and Self-reported Attachment Style

3.1 Introduction

As discussed in the first two chapters, there are principled reasons for expecting recall of autobiographical memories to vary as a function of adult attachment security. Although these security-related differences in autobiographical memory were based on classic attachment theory drawing on the concept of internal working models of attachment relationships (e.g., Bowlby, 1969/1982; Main et al., 1985), similar predictions arise from the more recent social cognition approach to attachment (Hazan & Shaver, 1987) investigating attachment by means of self-reported descriptions of current significant relationships. In Hazan and Shaver's (1987) original Adult Attachment Questionnaire, individuals were required to choose which of three descriptions best fitted their approach to close relationships with peers and romantic partners. The three descriptions were modelled on Ainsworth et al.'s (1978) strange situation categories of avoidant, secure and resistant. These original categories can be seen to be analogous to the dismissing, secure and preoccupied categories of the A.A.I..

More recently, the tripartite self-report measure has been adapted and extended. Bartholomew and Horowitz (1991) argued that, on the basis of positive versus negative internal working models of both self and relationships with others, there should logically be four categories of adult attachment style. Thus, in their Relationship Questionnaire, dismissing individuals were characterised as having a positive model of self, coupled with a negative model of relationships with others; secure individuals have secure models of both self and relationships with others, preoccupied individuals have a negative model of self, but

a positive model of relationships with others, and individuals in the fourth, fearful category have negative models of self and relationships with others. Bartholomew and Horowitz therefore distinguished between individuals who avoid forming close relationships because they deem them to be unnecessary (dismissing) or due to their fear of being rejected (fearful).

Self report measures have also been used to obtain continuous assessments of adult attachment style, focusing on the dimensions of attachment avoidance and anxiety (Griffin & Bartholomew, 1994), which are regarded to be orthogonal to one another. For example, within Bartholomew and Horowitz's (1991) four-category system for assessing attachment style, (a) secure individuals are characterised by low scores both for avoidance and anxiety, (b) dismissing individuals score high for avoidance but low for anxiety, (c) individuals classified as preoccupied have high levels of anxiety, coupled with low levels of avoidance, and (d) fearful individuals are both highly anxious and highly avoidant. While many researchers have recently adopted this dimensional approach to assessing adult attachment, comparing results of studies using dimensional versus categorical assessments of attachment is problematic due to the fact that the two dimensions do not map precisely onto the dismissing, secure, and preoccupied groups. For example, it cannot be assumed that all individuals who score highly on attachment avoidance can accurately be described as dismissing.

The mental representations of attachment relationships are believed to regulate the processing of attachment-related information by facilitating or inhibiting attentional processes (e.g., Fraley, Garner, & Shaver, 2000) and memory processes (Hesse, 1999) in a top-down fashion. Individual differences in adult attachment are therefore presumed to be associated with different approaches to information-processing (Dozier & Kobak, 1992).

3.2 Empirical research on memory and adult attachment

From within the social-cognitive tradition, a number of relevant investigations on the relation between adult attachment and cognitive and emotional processing have been carried out. In one of the first studies in this area, Mikulincer and Orbach (1995) investigated how young adults' attachment style (assessed using Hazan & Shaver's [1987] questionnaire) related to their cued recall of emotional experiences (happy, sad, anxious, and angry) from the first 14 years of life. Across their analyses on relations between attachment style and autobiographical memory, Mikulincer and Orbach typically found that dismissing and preoccupied individuals were at opposite extremes, with secure individuals falling between the two insecure groups. Specifically, compared with the preoccupied group, dismissing individuals (a) were older in the emotional memories recalled, (b) were slower at retrieving memories relating to sadness and anxiety, and (c) rated sad and anxious memories as less intense. Comparing performance within each attachment group across the four different emotions, Mikulincer and Orbach reported that the cued emotion had no effect on retrieval time for dismissing individuals. In contrast, individuals in the secure group were slower at retrieving memories relating to angry and sad events compared with happy and anxious memories, whereas preoccupied individuals showed a specific delay in recalling happy memories in comparison with the three negative emotional cues. Interestingly, Mikulincer and Orbach's findings also suggest that preoccupied individuals are more likely than those in the secure and dismissing groups to report multiple emotional responses to specific events. For example, in addition to rating each memory for the intensity of the cued emotion (happy, sad, angry or anxious), participants also rated their memories for a range of additional emotions. For the three negative emotions, preoccupied individuals reported feeling more intense additional emotions, such as feeling depressed, embarrassed, angry and sad in response to the anxious memory cue.

The results of Mikulincer and Orbach's (1995) study thus suggest that dismissing individuals experience greater difficulty in recalling emotional experiences than do individuals in the preoccupied group, while the latter appear to have increased access specifically to negative emotional experiences, coupled with a tendency to experience broad-ranging negative affect in response to a specific negative emotion cue. However, the results of this study cannot address which components of the memory system may be responsible for the observed latencies and deficits in the dismissing group. For example, it may be that dismissing individuals ignore or are unaware of negative emotional experiences and thus fail to encode them; alternatively, they might encode these experiences but then defend against them in attempting to recall negative events when cued to do so. In a series of studies, Fraley and colleagues have attempted to adjudicate between these two alternative explanations.

Fraley, Garner, and Shaver (2000) proposed two distinct forms of defence that might explain the observed lack of accessibility of emotional memories in dismissing individuals. Pre-emptive defences "minimize attention to events that might activate unwanted feelings or thoughts" (Fraley et al., 2000, p. 817), whereas post-emptive defences "deactivate or inhibit thoughts that have already been encoded" (Fraley et al., p. 817). In order to establish whether pre-emptive or post-emptive defence strategies better explained the pattern of recall observed in dismissing individuals, Fraley et al. chose to assess memory within the context of asking participants to recall specific information from an audio recording of an interview in which a woman described various attachment themes relating to close family relationships and loss. Participants were asked to answer questions on the content of the interview after varying periods of delay, with some being assessed for recall a few minutes after hearing the interview, and others recalling its content after a 3-week delay. Rather than assessing adult attachment style categorically, Fraley et al. obtained continuous ratings of attachment avoidance and attachment anxiety using Fraley et al. reported that high

attachment avoidance was associated with poorer recall for the content of the attachment interview, regardless of the period of delay between encoding and recall. Fraley et al. therefore concluded that individuals who report high levels of attachment avoidance appear to show deficits at the encoding stage of the memory process.

The results of a more recent study support this conclusion. Fraley and Brumbaugh (2007) investigated the relation between self-reported attachment avoidance and memory for emotional attachment-related material using both implicit and explicit measures of recall. The implicit test of memory enabled Fraley and Brumbaugh directly to address whether high levels of attachment avoidance are associated with individuals specifically failing to encode emotional material. If deficits are at the encoding stage i.e., pre-emptive defence, avoidance should relate to poor recall on implicit memory tests, whereas if the strategy is post-emptive defence, any deficits would only be evident on a test of explicit recall. Fraley and Brumbaugh results clearly suggested a pre-emptive defence strategy, with avoidance being negatively associated with recall on both the implicit and explicit tasks. Moreover, in a second experiment, Fraley and Brumbaugh found that giving participants a monetary incentive for higher rates of recall did not alter the pattern of findings, again suggesting that attachment avoidance is associated with a pre-emptive strategy that defends against the encoding of attachment-related emotional material. The authors suggest that top-down inhibitory processes interfere with the encoding of emotional material. However, this study did not include measures of memory for non-affective experiences, and it is therefore not possible to conclude that avoidant individuals' difficulties are specific to emotional experiences.

Although no study has directly addressed links between adult attachment and autobiographical recall for attachment versus non-attachment material, Edelstein (2006) investigated this issue in the context of working memory. In this study, a negative association was found between working memory and both positively and negatively

valenced attachment-related material, but not for emotional stimuli in general. Since working memory tasks are associated with attentive processes (although they do not measure attention directly), Edelstein concluded that the study confirmed the role of pre-emptive defence as postulated by Fraley and colleagues. It should be noted however that in their pioneering study, Dozier and Kobak (1992) found that dismissing individuals, experienced anxiety as indexed by an increase in skin conductance levels. This finding would contradict the hypothesis of pre-emptive defence.

However, while the results of previous studies on links between attachment style and autobiographical memory paint a consistent picture regarding deficits in dismissing and avoidant individuals, research has not yet considered how attachment relates to individuals' more general autobiographical recall. For example, the studies conducted by Fraley and colleagues specifically assessed participants' recall for attachment-related material presented in an interview, and Mikulincer and Orbach (1995) asked participants to recall early experiences only in response to four emotional cue words. Thus, it cannot establish from the extant literature whether an attachment style that is characterised by high levels of avoidance relates to deficits in autobiographical memory (a) when individuals are free to recall any events of their choice, and (b) when the events recalled are not negatively valenced or do not relate to attachment themes. Addressing these more general relations between attachment style and autobiographical memory was the aim of the study reported in this chapter.

3.3 Study 1

3.3.1 Aims

This study, will therefore investigate a possible association between adult attachment style and freely recalled memories, both in terms of the number and content, as well as the phenomenological properties of the memories recalled. As discussed in Chapter One, the

prevailing autobiographical memory models adhere to a constructivist approach to autobiographical memory in which memories are actively assembled on the basis of current motivations and emotions (Conway & Pleydell-Pearce, 2000; Rubin, 1986, 1995). An autobiographical memory is therefore a complex formation mediating between past event encoding and current representational coherence, which can be explored by considering characteristics such as its specificity, vividness and emotional intensity. The decision to consider these phenomenological properties in addition to memory content was also informed by the observation that early memories are sometimes difficult to retrieve in verbal form (Freud, 1916-1917; Pillemer, 1998). The characteristics chosen for the assessment were guided by the coding principles of the Adult Attachment Interview (George et al., 1985), which define dismissing individuals in terms of (a) finding recall of early memories difficult, (b) downplaying the importance of early experiences, and (c) lacking specific, intense and emotional memories relating to their early experiences. Participants were therefore required to rate their freely-recalled early memories for how frequently they had been rehearsed, their subjective importance, their specificity, and their emotional valence and intensity. The first study reported here, also included gender as an independent variable due to the fact that several investigations have reported gender differences in autobiographical memory, with women recalling earlier memories than men (Davis, 1999; Mullen, 1994; Rubin, 2000), and women tending to recall more negatively valenced memories than men (Davis, 1999; Friedman & Pines, 1991; Mullen, 1994; Schwartz, 1984).

In summary, the study reported in this chapter explored relations between attachment style and the free recall of early memories. If Fraley and colleagues are correct in concluding that attachment avoidance is associated with pre-emptive defence strategies resulting in emotional memories not being encoded, dismissing individuals should recall fewer negative emotional memories in free recall than their non-dismissing counterparts, but

the phenomenological properties of the memories recalled should not differ as a function of attachment style. 59

A first hypothesis was that dismissing individuals would differ significantly in the number of earliest memories from the other participants.

A second hypothesis was that the dismissing individuals would however not differ significantly from other participants in their ratings regarding the amount of rehearsal, the importance, vividness, emotional intensity at encoding and valence of emotion of the memories recalled.

This study also explored whether dismissing individuals had a deficit in recall specifically for negatively valenced memories, and whether attachment-related differences were seen in the phenomenological properties of negative versus positive/neutral memories, although no directional hypotheses were made due to the lack of previous research on these issues.

A third hypothesis was that dismissing individuals would differ from the other participants in the number of negative memories recalled during a free-recall task of early childhood memories and in the encoding age, proportion of specific memories, frequency of rehearsal, the importance and vivideness as well as and in the emotional intensity of the negative memories recalled, rather than in the positive or neutral memories recalled.

Finally, interactions between attachment style and gender in participants' autobiographical recall were investigated.

A fourth hypothesis was that as in previous studies, gender differences could be found in the ratings of the phenomenological properties of the early memories and the age of encoding.

3.3.2 Method

3.3.2.1 Participants

Participants were 211 (174 women) first year students attending a psychology lecture at Durham University. Data collection took place over two years in two separate lectures. The mean age of the participants was 19 years (SD = 2.42, range = 18-37 years). Students took part in the study on a voluntary basis and no incentive was offered for participation.

3.3.2.2 Procedure

Thirty minutes before the end of a psychology lecture on memory, attending students were asked to stay on if they were willing to participate in a study on early memories and childhood relationships. Students who chose to participate completed a consent form having read the project information sheet, and then completed a booklet of questionnaires administered in the order described below. Participants indicated their sex and date of birth on the first page of the booklet.

3.3.2.3 Adult Attachment Style

Attachment style was assessed using the revised Hazan and Shaver (1990) Adult Attachment Questionnaire (AAQ) developed in the social and personality psychology tradition. This questionnaire (see Appendix 5) consists of three brief prototypical descriptions of each attachment style (secure, dismissing, and preoccupied), with participants selecting the style that best describes their feelings about relationships with peers. The AAQ was used to assess attachment style using the AAQ rather than the more recent dimensional measures because, as discussed above, the aim was to investigate whether dismissing individuals recalled autobiographical material in qualitatively different ways to secure and preoccupied individuals. The AAQ was also chosen because of the ease of administration in large groups, its brevity and its face validity (Crowell, Fraley, & Shaver,

1999). The AAQ has been used with participants between 14 and 82 years of age, from varying socio-economic backgrounds (Shaver & Hazan, 1993), and has acceptable test-retest reliability (Stein et al., 1998). Participants' self-reported attachment style was used as a categorical variable in the analyses.

3.3.3.4 Autobiographical Memory

Participants were requested to recall their earliest memories, writing a description of each memory on a separate page of the booklet in the space provided. Participants were allowed 15 minutes to recall as many early memories as they could, and received a frequency score for the total number of memories recalled.

The characteristics of participants' autobiographical memories were assessed by means of a questionnaire developed for this study based on an adaptation of the Memory Characteristics Questionnaire (MCQ; Johnson, Suengas, Foley, & Raye, 1988). The MCQ is one of the most widely used measures for evaluating the characteristics of autobiographical memories (Sutin & Robins, 2007). The original MCQ consists of 39 separate dimensions on which a recalled memory is rated, each of which is evaluated using a 7-point Likert scale. The dimensions include memory content (e.g., sensory imagery) metacognitive judgements (e.g., accuracy), emotion (intensity and valence), rehearsal, and ease of retrieval.

Briefer versions of the MCQ have been employed regularly in autobiographical memory research, with the Likert scale ratings ranging from 5- to 9- point Likert scales (e.g., Lyle & Johnson, 2006; McGinnis & Roberts, 1996; Schaefer & Philippot, 2005). In the adaptation of the MCQ used in the study reported here (Appendix, 4), five dimensions of early memories were selected due to their relevance to individuals' internal working models of attachment relationships. Participants were also asked to indicate their age at the encoding of each memory as in all autobiographical memory studies and to evaluate whether the

memory recalled was a specific or general event. Although, this last dimension is also included in the MCQ and could be rated on a Likert scale, the dimension was simplified into a dichotomous category rating (yes and no) for brevity, and to simplify the data-analysis.

Participants were provided with instructions on how to rate the memory characteristics, and were then requested to rate each of their early memories using the scales printed on each page of the questionnaire beneath the space in which they had written down their memories. Participants rated each memory for the following memory characteristics:

1. Rehearsal: "How often have you thought and/or talked about this memory?" (1 = never; 5 = very frequently).

2. Importance: "How personally important is this memory to you?" (1= not important; 5 = very important).

3. Vividness: "How detailed and clear is your memory?" (1 = very vague; 5 = very vivid).

4. Emotional Intensity: "How intense were your feelings at the time?" (1 = no emotion; 5 = very intense).

5. Valence of emotion: "Were your feelings at the time negative or positive?" (1 = very negative; 5 = very positive).

Participants' ratings of the emotional valence of the memory were used to identify negatively valenced memories (i.e., scores of 1 or 2 on valence of emotion). Participants received scores representing the overall frequency of negative memories and the proportion of memories recalled that were rated as negative. For the negative and neutral/positive memories, participants received a mean score for each of the four remaining memory dimensions, representing these memory characteristics across all of the recalled memories of a particular valence.

Finally, participants were required to write the age at encoding, and rate each memory dichotomously as "specific" (an event that happened only once, like being sting by

a bee) or "general" (an event that took place regularly, like going to preschool every day). Participants' scores for specificity were the proportion of memories recalled that were specific, with separate scores calculated for negative and positive/neutral memories.

3.4 Results

3.4.1. Descriptive Statistics and Preliminary Analyses

The distribution of attachment styles in the sample was similar to that reported in equivalent student samples: 73.5% were secure, 16.1% were dismissing, and 10.4% preoccupied[10].

The means for the numbers of memories recalled in 15 minutes, the total number of negative memories, and the proportion of negative memories are shown in Table 3.1 as a function of adult attachment style and gender. All memory variables were normally distributed.

3.4.2. Relations between Attachment Style and the Number and Content of Early Memories

The relation between attachment style and early memory volume was investigated using a 3(attachment style) × 2(gender) ANOVA with total number of memories recalled as the dependent variable. There was a main effect of gender, $F(1, 209) = 8.37$, $p < .005$, $\eta^2 = .038$, with women ($M = 9.59$, $SD = 3.68$) recalling more memories than men ($M = 7.22$, $SD = 2.78$), but no main effect of attachment style, $F(2, 209) = 0.66$, n.s., $\eta^2 = .006$, and no attachment style × gender interaction, $F(2, 209) = 0.11$, n.s., $\eta^2 = .001$.

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[10] Three studies (Collins & Read, 1990); Kirkpatrick & Davis,1994); Feeney & Noller,1990) carried out on similar college samples reported the following mean distribution: 59.67% of secure; 24.34% of dismissing and 17.67% of preoccupied subjects.

The relation between attachment style and early memory content was first explored using the chi-square test to establish whether attachment style was related to the inclusion of any negative memories in participants' recall of early experiences. Of the secure group individuals, 141 (91.6%) included at least one negative memory, compared with 21 (95.5%) preoccupied individuals and 27 (79.4%) dismissing individuals. Dismissing individuals were less likely than those in the combined secure and preoccupied groups to include negative memories in their free recall of their earliest memories, $\chi^2(1) = 5.05$, $p < .025$, $w = 0.16$. There were no gender differences in the inclusion of negative memories, with 159 (91.4%) women and 31 (83.8%) men including at least one negative memory, $\chi^2(1) = 1.96$, n.s., $w = 0.09$.

Relations between attachment style and the recall of early memories judged to be negative were investigated in a series of 3(attachment style) × 2(gender) ANOVAs. For overall frequency of memories judged to be negative, there was no main effect of attachment style, $F(2, 209) = 0.73$, n.s., $\eta^2 = .007$, but a marginally significant main effect of gender, $F(1, 209) = 3.44$, $p = .065$, $\eta^2 2 = .016$. The attachment style × gender interaction was non-significant, $F(2, 209) = 0.60$, n.s., $\eta^2 = .006$. A post-hoc t-test showed that women (M = 2.74, SD = 1.82) recalled more negative memories than did men (M = 1.86, SD = 1.34), $t(209) = 2.75$, $p < .01$, $d = 0.56$.

Table 3.1: Mean scores for Early Memory Number and Emotional Content as a Function of Attachment Style and Gender (N=210)

	Dismissing		Secure		Preoccupied	
	Men	Women	Men	Women	Men	Women
Total number of memories	6.50 *2.07*	9.46 *4.35*	7.28 *3.04*	9.47 *3.41*	8.25 *2.50*	10.50 *4.57*
Total negative memories	2.25 *1.28*	2.42 *2.02*	1.68 *1.22*	2.71 *1.65*	2.25 *2.22*	3.39 *2.59*
Proportion negative memories	0.38 *0.23*	0.25 *0.18*	0.22 *0.13*	0.29 *0.17*	0.28 *0.24*	0.31 *0.14*

Standard deviations are in italics.

For the proportion of memories recalled that were judged negative, there was no

main effect of attachment style, $F(2, 209) = 1.05$, n.s.,$\acute{\eta}^2 = .010$, or gender, $F(1, 209) = 0.12$,

n.s., $\acute{\eta}^2 = .001$, but there was a significant attachment style × gender interaction, $F(2, 209) =$

3.53, $p < .05$. $\acute{\eta}^2 = .033$. Figure 3.1 shows the interaction. Post-hoc t tests comparing scores

for men and women in each of the three attachment groups showed that (a) the proportion of

negative memories recalled was higher for secure women ($M = 0.29$, $SD = 0.17$) than for

secure men ($M = 0.22$, $SD = 0.13$), $t(152) = 1.98$, $p < .05$, $d = 0.47$; (b) a non-significant

trend for dismissing men ($M = 0.38$, $SD = 0.23$) to recall proportionately more negative

memories than dismissing women ($M = 0.25$, $SD = 0.18$), $t(32) = 1.74$, $p = .096$, $d = 0.63$;

and (c) no difference in scores for proportion of negative memories for men ($M = 0.28$, SD

$= 0.24$) and women ($M = 0.31$, $SD = 0.14$) in the preoccupied group, $t(20) = 0.26$, n.s., $d =$

0.16.

Figure 3.1: Mean Scores for Proportion of Negative Memories Recalled as a
Function of Attachment Style and Gender
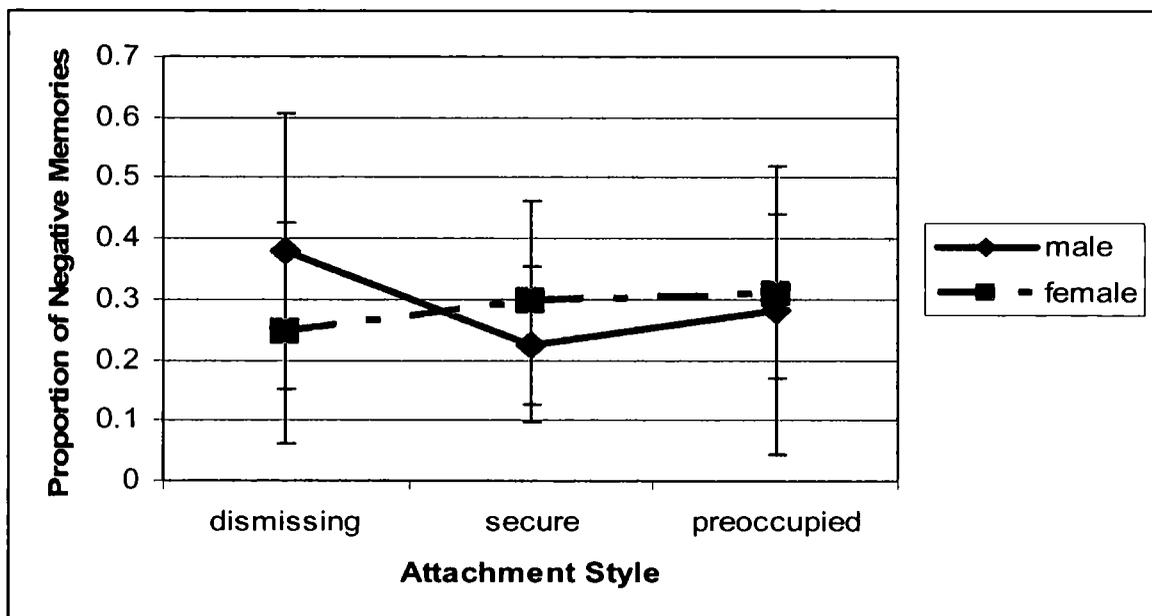
3.4.3. Relations between Attachment Style and the Characteristics of Early Negatively Valenced Memories

Table 3.2 shows the characteristics of the memories reported to be negative with respect to attachment style and gender. All of the memory characteristics variables were normally distributed.

Relations between attachment style and the characteristics of negative memories were investigated in a series of 3(attachment style) × 2(gender) ANOVAs[11]. The alpha value was adjusted to .01.

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[11] Running the separate ANOVAs as a single MANOVA which included the four phenomenological properties (rehearsal, importance, vividness, emotional intensity) resulted in the same finding, with no main effect of attachment style, $F(2, 177) = 1.55$, n.s., or gender, $F(1, 177) = 1.70$, n.s.

Table 3.2: Mean scores for the Phenomenological Properties of Early Negative Memories as a Function of Attachment Style and Gender (N=178)

	Dismissing		Secure		Preoccupied	
	Men	Women	Men	Women	Men	Women
Encoding age	51.47 *13.52*	50.33 *9.58*	49.55 *14.17*	53.98 *17.47*	57.60 *20.36*	50.87 *9.64*
Proportion specific memories	1.00 *0.00*	0.95 *0.17*	0.94 *0.16*	0.85 *0.27*	0.67 *0.56*	0.84 *0.32*
Rehearsal frequency	2.36 *0.82*	3.12 *0.75*	3.24 *1.03*	3.08 *0.86*	3.20 *1.31*	2.79 *0.74*
Importance	2.86 *1.22*	3.18 *0.75*	2.73 *1.04*	2.82 *0.94*	3.91 *0.54*	2.84 *0.79*
Vividness	2.70 *1.16*	3.47 *0.79*	3.46 *1.02*	3.44 *0.85*	3.71 *0.96*	3.47 *0.80*
Emotional intensity	3.61 *0.74*	3.98 *0.56*	3.47 *0.92*	3.72 *0.81*	4.33 *0.58*	4.03 *0.86*

Standard deviations are in italics.

For mean age at encoding, there was no main effect of attachment style, $F(2, 186) = 1.12$, n.s., $\acute{\eta}^2 = .001$, or gender, $F(1, 186) = 0.06$, n.s., $\acute{\eta}^2 = .000$, and no attachment style × gender interaction, $F(2, 186) = 0.58$, n.s., $\acute{\eta}^2 = .006$.

For the proportion of negative memories judged to be specific, there was no main effect of attachment style, $F(2, 186) = 2.34$, n.s., $\acute{\eta}^2 = .026$, or gender, $F(1, 186) = 0.02$, n.s., $\acute{\eta}^2 = .000$, and no attachment style × gender interaction, $F(2, 186) = 1.17$, n.s., $\acute{\eta}^2 = .013$.

For the mean number of times negative memories had been rehearsed, there was no main effect of attachment style, $F(2, 186) = 1.80$, n.s., $\acute{\eta}^2 = .019$, or gender, $F(1, 186) = 0.08$, n.s., $\acute{\eta}^2 = .000$, and no attachment style × gender interaction, $F(2, 186) = 2.40$, n.s., $\acute{\eta}^2 = .025$.

For the mean importance of negative memories, there was no main effect of attachment style, $F(2, 186) = 2.23$, n.s., $\acute{\eta}^2 = .023$, or gender, $F(1, 186) = 0.81$, n.s., $\acute{\eta}^2 = .004$, and no attachment style × gender interaction, $F(2, 186) = 2.19$, n.s., $\acute{\eta}^2 = .023$.

For the mean vividness of negative memories, there was no main effect of attachment style, $F(2, 186) = 1.60$, n.s., $\acute{\eta}^2 = .017$, or gender, $F(1, 186) = 0.52$, n.s., $\acute{\eta}^2 = .003$, and no attachment style × gender interaction, $F(2, 186) = 1.76$, n.s., $\acute{\eta}^2 = .019$.

Finally, for the mean emotional intensity of negative memories, there was no main effect of attachment style, $F(2, 186) = 2.63$, n.s., $\acute{\eta}^2 = .027$, or gender, $F(1, 186) = 0.23$, n.s., $\acute{\eta}^2 = .001$, and no attachment style × gender interaction, $F(2, 186) = 0.64$, n.s., $\acute{\eta}^2 = .007$.

There were thus no differences between the three attachment groups or between men and women in their reported characteristics of early memories judged to be negative.

3.4.4. Relations between Attachment Style and the Characteristics of Early Neutral/Positive Valenced Memories

Table 3.3 shows the characteristics of the memories reported to be neutral or positive with respect to attachment style and gender. All of the memory characteristics variables were normally distributed.

Relations between attachment style and the characteristics of neutral/positive memories were investigated in a series of 3(attachment style) × 2(gender) ANOVAs[12]. Alpha was adjusted to .01.

For mean age at encoding, there was no main effect of attachment style, $F(2, 186) = 0.42$, n.s., $\acute{\eta}^2 = .005$, or gender, $F(1, 186) = 0.22$, n.s., $\acute{\eta}^2 = .001$, and no attachment style × gender interaction, $F(2, 186) = 0.001$, n.s., $\acute{\eta}^2 = .000$.

For the proportion of neutral/positive memories judged to be specific, there was no main effect of attachment style, $F(2, 186) = 1.67$, n.s., $\acute{\eta}^2 = .017$, or gender, $F(1, 186) = 0.31$, n.s., $\acute{\eta}^2 = .002$, and no attachment style × gender interaction, $F(2, 186) = 2.00$, n.s., $\acute{\eta}^2 = .020$.

For the mean number of times neutral/positive memories had been rehearsed, there was no main effect of attachment style, $F(2, 186) = 0.20$, n.s., $\acute{\eta}^2 = .003$, or gender, $F(1, 186) = 2.90$, n.s., $\acute{\eta}^2 = .016$, and no attachment style × gender interaction, $F(2, 186) = 0.14$, n.s., $\acute{\eta}^2 = .001$.

For the mean importance of neutral/positive memories, there was no main effect of attachment style, $F(2, 186) = 2.44$, n.s., $\acute{\eta}^2 = .026$, or gender, $F(1, 186) = 0.04$, n.s., $\acute{\eta}^2 = .000$, and no attachment style × gender interaction, $F(2, 186) = 2.20$, n.s., $\acute{\eta}^2 = .023$.

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[12] Running the separate ANOVAs as a single MANOVA which included the four phenomenological properties (rehearsal, importance, vividness, emotional intensity) resulted in the same finding, with no main effect of attachment style, $F(2, 177) = 2.34$, n.s., or gender, $F(1, 177) = 0.02$, n.s.

Table 3.3: Mean scores for the Phenomenological Properties of Early Neutral/Positive Memories as a Function of Attachment Style and Gender

(N=187)

	Dismissing		Secure		Preoccupied	
	Men	Women	Men	Women	Men	Women
Encoding age	50.47 *8.87*	48.94 *11.10*	53.24 *12.69*	51.49 *11.05*	52.27 *12.82*	50.74 *11.02*
Proportion specific memories	0.75 *0.34*	0.62 *0.18*	0.57 *0.26*	0.59 *0.25*	0.46 *0.26*	0.67 *0.21*
Rehearsal frequency	2.25 *0.72*	2.77 *0.60*	2.49 *0.64*	2.79 *0.91*	2.50 *0.50*	2.81 *0.67*
Importance	2.19 *0.65*	2.72 *0.54*	2.68 *0.84*	2.76 *0.62*	3.25 *0.43*	2.74 *0.62*
Vividness	2.83 *0.99*	2.75 *0.59*	2.93 *0.71*	3.11 *0.66*	2.68 *0.76*	2.95 *0.64*
Emotional intensity	2.58 *0.86*	2.70 *0.74*	2.51 *0.80*	2.73 *0.66*	2.00 *0.77*	2.82 *0.58*

Standard deviations are in italics.

For the mean vividness of neutral/positive memories, there was no main effect of attachment style, $F(2, 186) = 1.15$, n.s., $\eta^2 = .012$, or gender, $F(1, 186) = 0.46$, n.s., $\eta^2 = .002$, and no attachment style × gender interaction, $F(2, 186) = 0.32$, n.s., $\eta^2 = .003$.

Finally, for the mean emotional intensity of neutral/positive memories, there was no main effect of attachment style, $F(2, 186) = 0.45$, n.s., $\eta^2 = .005$, or gender, $F(1, 186) = 4.37$, n.s., $\eta^2 = .023$, and no attachment style × gender interaction, $F(2, 186) = 0.96$, n.s., $\eta^2 = .010$.

There were thus no differences between the three attachment groups or between men and women in their reported characteristics of early memories judged to be neutral or positive.

3.4.5. Differences in the Reported Characteristics of Negative Versus Neutral/Positive Memories

Differences between the characteristics of memories judged to be negative or neutral/positive were investigated in a series of paired t tests, with relations reported as a function of either attachment style or gender. The relevant descriptive statistics are shown in Tables 3.2 and 3.3. Alpha was adjusted to .01.

Individuals in the dismissing group did not differ in (a) the age of encoding of negative versus neutral/positive memories, $t(26) = 0.72$, n.s., $d = 0.13$; or (b) mean scores for rehearsal of negative versus neutral/positive memories, $t(26) = 1.60$, n.s., $d = 0.39$. Compared with neutral/positive memories, dismissing individuals rated negative memories as (a) more specific, $t(22) = 5.64$, $p < .001$, $d = 2.00$; (b) more important, $t(26) = 3.87$, $p < .001$, $d = 0.78$; (c) more vivid, , $t(26) = 3.87$, $p < .001$, $d = 0.66$; and (d) more emotionally intense, $t(26) = 7.43$, $p < .001$, $d = 1.81$.

Individuals in the secure group did not differ in (a) the age of encoding of negative versus neutral/positive memories, $t(138) = 0.98$, n.s., $d = 0.09$; or (b) the

importance of negative versus neutral/positive memories, t(140) = 0.47, n.s., d = 0.07. Compared with neutral/positive memories, secure individuals rated negative memories as (a) more specific, t(133) = 9.25, p < .001, d = 1.14; (b) more frequently rehearsed, t(139) = 4.46, p < .001, d = 0.42; (c) more vivid, t(140) = 4.76, p < .001, d = 0.48; and (d) more emotionally intense, t(140) = 11.10, p < .001, d = 1.30.

Individuals in the preoccupied group did not differ in (a) the age of encoding of negative versus neutral/positive memories, t(17) = 0.53, n.s., d = 0.13; (b) the proportion of negative versus neutral/positive memories reported to be specific, t(20) = 1.86, n.s., d = 0.56; (c) the importance of negative versus neutral/positive memories, t(20) = 0.49, n.s., d = 0.11; or (d) the frequency with which negative versus neutral/positive memories had been rehearsed, t(20) = 0.92, n.s., d = 0.23. Compared with neutral/positive memories, preoccupied individuals rated negative memories as more vivid, t(20) = 3.35, p < .005, d = 0.81, and more intense, t(20) = 6.52, p < .005, d = 1.85.

With respect to gender differences in ratings of negative versus neutral/positive memories, women did not differ in age of encoding, t(154) = 1.63, n.s., d = 0.15, or the reported importance of the memory, t(158) = 1.57, n.s., d = 0.16. Compared with neutral/positive memories, women rated negative memories as (a) more specific, t(149) = 8.99, p < .001, d = 1.02; (b) more frequently rehearsed, t(157) = 3.64, p < .001, d = 0.32; (c) more vivid, t(158) = 6.13, p < .001, d = 0.55; and (d) more emotionally intense, t(157) = 13.68, p < .001, d = 1.45.

In men, there were no differences between ratings of negative and neutral/positive memories for (a) age of encoding, t(29) = 0.94, n.s., d = 0.17 ; (b) importance, t(30) = 1.15, n.s., d = 0.25 ; and (c) vividness, t(30) = 2.19, n.s., d = 0.50. Compared with neutral/positive memories, men rated negative memories as (a) more specific, t(28) = 5.23, p < .001, d = 1.36; (b) more frequently rehearsed, t(30) = 3.54, p < .001, d = 0.72; and (c) more emotionally intense, t(30) = 4.91, p < .001, d = 1.32.

3.5 Discussion

The results of the study reported in this chapter showed that, although there were no attachment-related differences in the overall volume of recall, individuals who reported a dismissing attachment style in their current close relationships were less likely than those in the secure and preoccupied groups to report a negative event when freely recalling as many early memories as they could within 15 minutes. A significant interaction was found between attachment style and gender for the proportion of early memories recalled that were negatively valenced. This interaction was accounted for by secure group women recalling proportionately more negative early memories than secure group men and a non-significant trend in the opposite direction for individuals in the dismissing group.

In contrast to the effect of attachment style on the emotional content of early memories, attachment was unrelated to all measures of the phenomenological properties of the early memories recalled both when the memory was negative or neutral/positive in emotional tone.

Finally, comparing each phenomenological property across negative versus neutral/positive memories, individuals in the preoccupied group showed the least differentiation in their ratings of the phenomenological properties of memories. While dismissing and secure group individuals reported higher scores for negative memories than for neutral/positive memories on four out of six scales, preoccupied individuals only reported differences as a function of emotional valence for vividness and emotional intensity, with negative emotions being reported as more vivid and intense. Both dismissing and secure group individuals also reported negative memories to be more vivid and intense than neutral/positive memories. In addition, dismissing individuals reported negative events as more specific and more important than neutral/positive memories, while individuals in the secure group reported greater specificity and more frequent rehearsal of negative memories than of neutral/positive memories.

With respect to gender differences, women recalled more early memories than did men, and women also recalled more early negative memories, replicating the findings of previous studies (Davis, 1999; Friedman & Pines, 1991; Mullen, 1994; Schwartz, 1984). Men and women did not differ in their reports of the phenomenological properties of the recalled memories either for negative or for neutral/positive early memories. Women reported that negative memories were more specific, more frequently rehearsed, more vivid and more emotionally intense than neutral/positive memories; men reported negative memories as being more specific and intense and more frequently rehearsed than neutral/positive memories. The gender differences found may however be due to unequal sample sizes of males (N=37) and females (N=174).

The fact that dismissing individuals were found to be less likely than their secure or preoccupied counterparts to report a negative event in their free recall of early memories is in line with previous findings that dismissing or avoidant individuals showed deficits in recall either in response to emotional cues for autobiographical memories (Mikulincer & Orbach (1995) or implicit or explicit recall of interview material relating to attachment themes (Fraley et al., 2000; Fraley & Brumbaugh, 2007). However, the present findings extend previous research by highlighting differences in the emotional content of memories in dismissing group individuals when they are free to recall any events from early childhood. This suggests that the differences previously observed on laboratory-based measures of recall generalise to freely recalled early childhood experiences.

The fact that no attachment-related differences were found in the properties of the memories recalled is in line with Fraley and colleagues' (Fraley et al., 2000; Fraley & Brumbaugh, 2007) conclusion that attachment avoidance is associated with a pre-emptive rather than post-emptive defence strategy, whereby negative emotional or attachment-related material is not initially encoded. For those negative memories that were recalled, dismissing

individuals did not differ from their counterparts in the secure and preoccupied groups in their ratings for specificity, importance, frequency of rehearsal, vividness, emotional intensity or age at encoding. Thus, the deficits seen in dismissing individuals' reporting of negative emotional memories can be considered to be linked to memory dysfluences rather than to a negative evaluation of the memories recalled.

However, while the results reported in this chapter as well as those of previous research on relations between attachment style and recall of emotional or attachment-related suggest that dismissing individuals process such material in the same way as secure and preoccupied individuals, once it has been encoded, this conclusion may only hold for conscious appraisals of one's attachment style. The difference between the conscious interpretation of relationships required to complete measures such as the AAQ and the relatively inaccessible internal working models of attachment relationships assessed via means of discourse-based measures of adult attachment has been widely discussed (see Crowell & Treboux, 1995; Furman & Flanagan, 1997; Stein, Jacobs, Ferguson, Allen, & Fonagy, 1998). In particular, individuals who are classified as dismissing on the AAQ acknowledge relationship difficulties and anticipate rejection, while on the contrary, dismissing A.A.I. transcripts are characterised by the minimising of relationship difficulties, and an idealisation and normalisation of relationship experiences. Thus, by asking subjects to choose a prototype according to their current close relationships, the AAQ differs from the theoretical underpinnings of attachment theory as developed by Bowlby (1979), who underlined the activation of the attachment system in asymmetric relationships. The fact that several studies have found little evidence for strong concordance between self-reported attachment style and A.A.I. classifications (Roisman et al., 2007) underlines the difference between conscious appraisals of relationships versus unconscious influences of attachment representations on individuals' characterisations of close relationships. It may be that assessing adult attachment using the A.A.I. will result in attachment-related differences

becoming evident in the process of memory recall rather than merely in terms of memory encoding. If such differences were observed when attachment was assessed in terms of underlying internal working models, then concluding that dismissing individuals adopt a pre-emptive defence strategy would appear to be premature. The second study reported in this thesis thus aimed to investigate whether a different pattern of findings to that reported in this chapter was seen when adult attachment was assessed using the A.A.I. rather than a self-report measure.

Chapter 4: Relations between Autobiographical

Memory and Attachment State of Mind

4.1 Introduction

The results of the study reported in Chapter Three suggested that the effects of adult attachment on autobiographical recall are specific to how negative emotional memories are encoded rather than processed or recalled. In order to investigate this possibility in greater detail, and to establish whether the observed effect was confounded by attachment being assessed purely in terms of individuals' conscious appraisal of their attachment style, the study reported in this chapter focused on relations between autobiographical recall and attachment state of mind as measured using the A.A.I. (George et al., 1985). The first aim of the second study was thus to explore how individual differences in internal working models of attachment relate to early childhood memories.

If the insistence of lack of recall of early memories or the inability to generate specific autobiographical memories that characterise a dismissing state of mind on the A.A.I. are indeed products of a failure to encode emotional and attachment-related material, then we should expect to see no attachment-related differences in individuals' ratings of their early memories. Thus, if a dismissing style is associated with a pre-emptive defence strategy that minimises attention to attachment-related material due its potential to activate negative thoughts and feelings, dismissing individuals should find recalling memories specifically in response to attachment-related cues difficult. Difficulties in recall could be manifested as a basic inability to report a memory in response to attachment cues or taking longer to access memories associated with the attachment cues. The underlying reasoning is that the time necessary to recall information from long-term memory indicates the fluency

with which a memory is accessed according to spreading activation theory (Anderson, 1983)[13]. In order to explore these possibilities, the study reported in this chapter assessed recall in one-to-one sessions with participants in which latency of recall data could be collected in addition to information on volume and content of recall.

Alternatively, if a dismissing state of mind is associated with a post-emptive defence strategy, whereby access to attachment-related material is inhibited after it has been encoded, one would predict a somewhat different pattern of results as a function of A.A.I. classification. While a post-emptive strategy is also likely to result in greater latency in recalling memories in response to attachment cues, this type of strategy is more likely to impact on individuals' ratings of the phenomenological properties of attachment-related memories than on basic volume of recall. For example, it seems reasonable to predict that a post-emptive strategy will result in individuals reporting attachment-related memories as less vivid, specific and emotionally intense and less frequently rehearsed than memories unrelated to attachment themes.

This highlights the importance of assessing individuals' recall of both attachment-related and non-attachment material. Although the studies discussed in Chapter Three that investigated autobiographical memory and self-reported attachment style attempted to investigate security-related differences in recall of attachment material, no study with adults has yet adopted a methodology of using specific attachment versus non-attachment cues for autobiographical memory recall. Mikulincer and Orbach (1995) used emotional terms (happy, sad, angry, anxious) as cues to recall autobiographical memories, which meant that participants could recall events unrelated to attachment relationships. Fraley et al. (2000) and Fraley and Brumbaugh (2007) assessed recall of material from an interview in which a woman discussed attachment issues, but did not assess participants' recall of their own attachment experiences. Edelstein (2006) used attachment and non-attachment cues but

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[13] Reaction or retrieval time measures have been an integral part of autobiographical memory research since Galton (1883).

assessed only working memory, and not autobiographical memory. The second aim of the study reported in this chapter was thus to explore how attachment state of mind related to recall (a) when retrieval cues were designed to access attachment-related memories, and (b) when the cues were unconnected to attachment themes. A basic tenet of attachment theory is that disruptions of attention and memory processes are specific to attachment-relevant information, and attachment-related differences should therefore only be seen when the attachment systems are activated during recall. Given that the results of Study One showed attachment-related effects specifically for negatively valenced early memories, Study Two also investigated how the valence of the attachment cue word related to both basic recall and the reported characteristics of the memories.

Only four previous studies have addressed links between attachment state of mind and autobiographical recall. In the earliest of these studies, Dozier and Kobak (1992) obtained measures of skin conductance during the A.A.I.. The A.A.I. was rated in this study using the Attachment Interview Q-Set (Kobak, 1989), which yielded continuous measures on deactivation-hyperactivation strategy. Dozier and Kobak reported that scores on deactivation were positively correlated with skin conductance during the A.A.I., whereas no significant correlation was found between scores for hyperactivation and skin conductance.

Two studies have reported on associations between A.A.I. classification and autobiographical recall in the context of investigating the discriminant validity of the A.A.I.. Bakermans-Kranenburg and van IJzendoorn (1993) assessed autobiographical memory for non-attachment material using both a self-report instrument which was derived from several meta-memory questionnaires, and an interview. Dismissing A.A.I. classification was not associated with poorer recall on any of the measures of non-attachment related autobiographical material; indeed, they were faster than their counterparts in the secure and preoccupied groups in recalling childhood memories during the interview task. Bakermans-Kranenburg and van IJzendoorn therefore concluded that the deficits in memory that

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characterise dismissing state of mind are specific to recall of attachment-related material. These results were replicated by Sagi et al. (1994), when non-attachment autobiographical memory was assessed in terms of number of memories and age at encoding obtained from a cued recall procedure.

A further study was carried out examining links between information processing and A.A.I. classification. Zeijmans van Emmichoven, van IJzendoorn, de Ruiter, and Brosschot (2003) investigated attentional bias for threatening, neutral and positive stimuli with an emotional Stroop task[14] as well as on a free recall memory task. The study was carried out with a group of anxiety disordered patients and a non-clinical control group. In the clinical sample, the securely attached participants showed greater interference for threatening words on the Stroop test, and better recall for all types of stimuli on the free recall task than the insecure individuals. In the non-clinical group, however, the insecure individuals had the larger interference effects on the Stroop test (regardless of nature of the stimuli). Secure non-clinical participants specifically recalled more threatening stimuli during the free recall task. The authors concluded that securely attached patients were more open to processing threatening material than insecure patients or non-clinical participants. The insecure clinical group was likely to defensively exclude threatening information, due to the co-occurrence of their anxiety disorder and attachment insecurity. Contrary to the authors' expectations, both the dismissing and preoccupied individuals recalled threatening words to a lesser extent than the secure individuals. The authors suggest that both "react defensively at this level of information processing...contrary to the A.A.I., on which they are discriminated on the basis of their overt verbal strategy" (p. 234).

Thus, while the consensus of opinion is that A.A.I. classification has a specific impact on recall only for attachment-related material, no study has yet investigated how attachment state of mind relates to recall of attachment versus non-attachment material in

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[14] In the Stroop task paradigm longer response times indicate interference with processing of information.

contexts other than the A.A.I.. In addition, links between A.A.I. and autobiographical recall have only been addressed in terms of basic memory measures such as latency of recall. Study Two therefore sought to investigate how A.A.I. classification related to individuals' reports of the phenomenological properties of the memories recalled.

The third aim of Study Two was to explore in greater depth whether attachment-related differences in autobiographical recall are indeed best characterised in terms of a pre-emptive defence strategy (Fraley et al., 2000). If this is the case, one would hypothesise that there would be no attachment-related differences in individuals' report of their emotional reaction while recalling memory associated with attachment experiences. To investigate this hypothesis, participants in Study Two were asked to rate emotional intensity of the memory during recall in addition to rating the memories on the properties detailed in Study One. Participants were also asked to rate memories in terms of how much the memory recalled said about themselves to explore whether attachment state of mind relates to one's explicit belief that early experienced have shaped oneself and are enlightening in terms of understanding one's adult personality.

The final aim of Study Two was to control for potential confounds in any observed relations between attachment state of mind and autobiographical recall. Specifically, we explored whether previous experience of traumatic events and concurrent depressive symptoms related to individuals' recall of attachment-related and non-attachment material. As mentioned in chapter 1 it has been repeatedly established that depression (in terms of a depressed mood or clinical depression) are associated with an inability to recall specific autobiographical memories in response to emotion-related cue words (Williams & Broadbent, 1986; Dagleish, Williams, Golden et al., 2007; Brewin, Reynolds, & Tata, 1999; Kuyken & Dagleish, 1995). Assessing participants' previous experience of trauma was important to control for the possibility that such experiences might have a direct impact on an individual's defence strategies for recalling emotional material. The attachment literature

tends to assume that the impact of traumatic events results in an unresolved state of mind with regard to such experiences, but as Bernier and Meins (in press) have discussed, there is little empirical data to support this assumption. Bernier and Meins therefore called for future research to include separate measures of actual experience of trauma in addition to assessing trauma in the context of narrative markers indicating lack of resolution about such events during the A.A.I.. Study Two therefore included a separate measure on individuals' previous experience of trauma.

In summary, Study Two investigated relations between attachment state of mind as assessed using the A.A.I. and individuals' (a) free recall of early memories, and (b) recall of memories in response to attachment-related and non-attachment cue words in order to explore in greater detail whether attachment-related differences in autobiographical recall are best characterised in terms of pre-emptive or post-emptive defence strategies.

4.2 Method

4.2.1 Participants

Participants were 65 (39 women) adults with a mean age of 21.6 years (range = 18-52 years). Participants were recruited over a two-year period in five of Durham University's colleges by means of e-mails and flyers. Psychology students were excluded on the grounds that they could be familiar with the measures used. The vast majority of participants (92%) were undergraduates, with 5% post-graduate students and 3% graduates who were not in post-graduate education. In order to guarantee accurate coding of the A.A.I. and fluency during memory recall, only native English speakers were accepted. Three participants were not British but native English speakers (of American, Greek and Malaysian nationality), and 4 were bi-lingual having one non-English speaking parent.

Recruitment took place in two phases. Initial contact took place via e-mail, after potential participants received an information sheet briefly describing the study (see

Appendix 8) and a consent form. Potential participants were asked to write to the main investigator if they were willing to be included in the study. Eighty percent of subjects who received the information sheet participated in the study. One participant was excluded from the study for high levels of distress during a preliminary encounter. Of the 65 participants who completed the study, one refused to complete the childhood trauma questionnaire.

4.2.2 Ethical considerations

Ethical approval for the study was granted by the University Ethics Committee in 2000. Each participant provided informed consent (see Appendix 9). Participants were informed that they could withdraw from the study at any time, and were told at the outset that they may find taking part distressing and were not obliged to disclose personal information. The nature of the study led to contacts being made with the University Counselling Service for potential referrals. Two participants were accompanied to the counselling service during the study.

4.2.3 Procedure

Participants were interviewed individually in a private room at their college or in the Psychology Department. The order of the tasks was the same for all participants, first, as recommended (Main, Goldwyn, & Hesse, 2002), the Adult Attachment Interview was administered in the first testing session, followed by the Earliest Memory Task. In the second session, participants completed the Cued Childhood Autobiographical Memories Task. The depression and childhood trauma assessments were administered in the final session.

4.2.3.1 Adult Attachment Assessment

Adult attachment status was assessed using the Adult Attachment Interview (A.A.I.: George et al., 1984). The A.A.I. is a semi-structured clinical interview developed in order to assess attachment representations in adults, in terms of the individual's current 'state of mind' with respect to attachment. In the A.A.I., the participant is asked to describe their early childhood experiences and relationships with both mother and father. The A.A.I. also includes questions dealing with early separations from attachment figures, feelings of rejection, and lifetime experiences of trauma and loss. As well as being asked to describe events, the interviewee is requested to conceptualise how their experiences and relationships have affected them. A.A.I. classification is based on aspects of the individual's discourse during the interview rather than the basic content of the events described.

The author administered all of the A.A.I.s, which lasted 50 minutes on average (range = 30 to 90 minutes). The A.A.I.s were audio-taped, transcribed verbatim and coded according to the Main and Goldwyn (1998) procedure. The author completed her reliability training in 1999 with Professors Nino Dazzi and Deborah Jacobvitz, and is accredited as a rater. A second certified coder (Dr. Arnott) coded 61% (40) of the interviews, and inter-rater reliability across the main categories was $\kappa=0.90$. The inter-rater correlations between the single experience and state of mind scales of the A.A.I. are indicated in Tables 1 and 2 of Appendix 16. The correlations ranged from a maximum of $r=0.95$ for the Derogation of Attachment scale to a minimum of $r=0.60$ for the Rejection of Father Scale. Two A.A.I. transcripts were classified as Cannot Classify, both of which were verified by a third reliable coder (Dr. Chiara Pazzagli). In cases of disagreement, the two coders reached a consensus after discussion.

The three-category (dismissing, secure, preoccupied) A.A.I. classification system has been shown to be stable up to a 15-month period with stability ranging from 77% to 90% (Bakermans-Kranenburg & van IJzendoorn, 1993; Benoit & Parker, 1994; de Haas et al.,

1994; Sagi et al., 1994). For the overall classification, inter-rater reliability ranges from 75% to 100% (Allen, Hauser & Borman-Spurell, 1996; De Haas et al., 1994; Pianta, Egeland, & Adam, 1996). The A.A.I. has good discriminant validity with A.A.I. classification being unrelated to IQ, short and long term memory, and interviewer effects (Bakermans-Kranenburg & van IJzendoorn, 1993; Sagi et al., 1994), as well as social desirability and discourse styles (Bakermans-Kranenburg & van IJzendoorn, 1993; Crowell et al., 1996).

4.2.3.2 Memory Assessments

Participants were asked verbally to recall two different types of memory – their earliest memory and cued childhood autobiographical memory (described below) – with all responses being audio-taped. Immediately after recalling the earliest or cued autobiographical memory, the participant completed a questionnaire to rate the phenomenological characteristics of the memory. The questionnaire consisted of 8 items, based on the Memory Characteristics Questionnaire (MCQ; Johnson et al., 1988) regarding the subjective experience related to the memory recalled as well as questions adapted from Pillemer (1998) on the importance of the remembered event, and on how frequently the event had occurred (Williams, 1996). Due to the additional memory tasks used in Study Two, participants were asked to recall and rate only their earliest memory, rather than recalling as many early memories as possible within a set period of time as was the case in Study One. Study Two thus cannot address how attachment state of mind relates to the volume of early memories freely recalled, but only links between attachment and (a) the emotional valence of the earliest memory, and (b) the reported phenomenological characteristics of the earliest memory.

4.2.3.3 Earliest Memory

Participants were asked to recall their earliest memory. They were asked to talk about a specific even they remember experiencing rather than recall an event that they had been told about by others or had seen in a photograph. Once the earliest memory had been recalled, the participant rated the memory using the 8-item adapted MCQ. The memory was rated on the following dimensions:

1. Rehearsal: "How often have you remembered this event?" (0 = never before; 6 = many times before).

2. Importance: "I believe my feelings would be" (0 = not at all intense; 6 = very intense).

3. Vividness: "How vivid is your memory?" (0 = not at all; 6 = very vivid).

4. Emotional intensity at encoding: "How intense were your feelings at the time?" (0 = not at all intense; 6 = very intense).

5. Valence of emotion: "Were your feelings at the time negative or positive?" (0 = very negative; 6 = very positive).

6. Specificity: "Is this memory about an event that only happened once (like being stung by a bee) or about an event that took place regularly (like going to pre-school every day)?" (0 = definitely a repeated event; 6 = definitely happened only once).

7. Emotional intensity at recall: "How intense were your feelings when you were remembering this event today?" (0 = not at all intense; 6 = very intense).

8. Self-relevance: "How much does this memory reveal or say about you?" (0 = not much; 6 = a lot).

Two participants did not complete the MCQ for their earliest memory. The ratings of the valence of the earliest memory were used to classify participants dichotomously according to whether the memory was negative (i.e. a score of 0, 1 or 2) or neutral/positive.

4.2.3.4 Cued Childhood Autobiographical Memories

The Cued Childhood Autobiographical Memory Task was an adaptation of Crovitz's (1973) free-association procedure. It is assumed that upon hearing a cue word, the participant recalls memories associated with the cue (Brown & Schopflocher, 1998). The cue words were selected from various previous studies (Hacque & Conway, 2001; Robinson, 1976; Semin & Smith, 1999; Williams & Broadbent, 1986; Williams, Ellis, Tyres, Healy, Rose, & MacLeod, 1996) in order to favour childhood recollections. The aim was to identify words that would cue attachment-related memories and cues unrelated to attachment material. The selection of the final list of cue words was also made in order to balance attachment and non-attachment cues for emotional tone and level of concreteness given that these aspects of cue word have been found to relate to participants' recall (Paivio, 1968; Semin & Smith, 1999). In addition, Robinson (1976) found in a college sample that individuals tend to have longer latencies of retrieval when the cue words consists of affect words rather than activities or nouns describing objects. For this reason attachment cue words were chosen to reflect both words and activities.

The 21 words chosen as cues were: happy, absence, toy, separation, flower, helpless, hug, home, occasion, safe, grief, kitchen, family, bad, calm, bed-time story, milk, rejection, friendly, grass, bath. These words were rated dichotomously as attachment-related or non-attachment by two experienced attachment researchers (Prof. Alessandra De Coro and Dr. Chiara Pazzagli) who were blind to the study's hypotheses. They rated the following eight words as attachment-relevant: separation, helpless, hug, safe, grief, family, bed-time story, and rejection, with an inter-rater agreement of $\kappa = 0.61$

The instructions for administering the Cued Autobiographical Memory task were taken from the Autobiographical Memory Test (AMT; Williams & Broadbent, 2000).

Participants were informed that they would be asked to recall a memory in response to 21 separate cue words. As in the AMT, participants were told that the memory recalled must be specific (i.e., related to a 24 hour period at most). In the present study, participants were also requested to recall only memories that occurred up to age 12 in order to avoid potential confounds relating to attachment-related cues accessing memories from earlier lifetime periods than those of the non-attachment cues. As indicated by Brown (1993), participants were asked to indicate verbally once they had recalled a memory to evaluate retrieval times accurately. Participants were given a maximum of 60 seconds to retrieve an associated memory, and if a memory could not be recalled the next cue word was presented. The precise instructions were as follows:

"I will read you a word and ask you to recall a memory you have of an event that you experienced. I would like you to recall a childhood memory, so up to let's say age 12. The memory should be specific: that means it should last a second, a minute, an hour and no longer than at most a day. Try to think of an event in your past that the cue word reminds you of. So if I say the word "good" for example, it would not be OK to say "I always enjoyed good parties", it would be OK to say "I had a good time at Jane's party", because that's a specific event. It is important to try to retrieve a different memory for each word. I will be stop-watching how long it takes for a memory to come to mind. As soon as you have the memory please tell me, by raising your hand. Should nothing come to mind, we'll wait 60 seconds and then go on to the next word. If a memory comes to mind that you don't feel like telling me, just tell me that a memory has come to mind, and I will give you a piece of paper on which you will write a few keywords so that you will remember what it was, without telling me. Afterwards I will ask you some questions about each memory except for the ones you don't feel like telling me about."

To familiarise participants with the task and to ensure that instructions had been understood, three practice trials were carried out, using the following cue words: helpful, cake and angry. Each cue word was read to the participant, the time stop-watched and the participant was asked to indicate when the memory had been recalled and to recount it verbally. The investigator wrote down the memory which was also audio-taped. To avoid participant fatigue, after a set of 6 cue words, each memory was recalled with the aid of the investigator's notes, and participant and investigator filled out the 8-item MCQ questionnaire for each of the memories. This process continued until participants had recalled and rated memories in response to each of the 21 cue words. The order of presentation of the cue words was randomised across the participants.

Participants received scores for the total number of memories recalled in response to the attachment-related and non-attachment cue words. In addition, the number of memories recalled in response to the negative attachment-related words (separation, helpless, grief, rejection) were calculated. Participants also received an average score for the latency of recall of the memories in response to the following cue words: (a) attachment-related, (b) negative attachment-related, and (c) non-attachment. Finally, average scores were calculated for each of the 8 scales for the attachment-related, negative attachment-related and non-attachment cued memories.

4.2.3.5 Depressive Symptoms

Participants completed the Beck Depression Inventory (BDI; Beck, Ward, Mendelsohn, Mock, & Erbaugh, 1961), which contains 21 items, each rated on a 0–3 scale. Participants are requested to complete the questionnaire to indicate their mood in the past 2 weeks. Possible scores range from 0 to 63, with higher scores indicating greater levels of depression. Participants received an overall score for the BDI. Thirteen participants were

clinically depressed as indicated by scores above the cut-off score of 15 for non-clinical samples as indicated by Beck and Steer, (1987) all of whom had been previously diagnosed and were in treatment.

4.2.3.6 Previous Experience of Trauma

The Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1997), is a 28 item self-report measure which was administered to screen for abusive experiences and neglect during childhood. Participants were asked to rate retrospectively, on a 5-point Likert scale ranging from "never true" to "very often true", how much a certain experience occurred during childhood. Ratings are given on 5 sub-scales, each consisting of 5 items, and on a 3-item "minimisation" or denial scale to control attempts to minimise abusive experiences. Reliability, in terms of the internal consistency of the scales range from $\alpha=.63$ to .92, and the test-retest reliability is good ($\alpha=.80$). A total childhood trauma score (the sum of the 5 subscale scores) was used in the present study, to create one variable and improve the reliability of the measure as in previous studies (see for e.g., Waldinger, Schulz, Barsky & Ahern, 2006.)

4.3. Results

4.3.1. Descriptive Statistics and Preliminary Analyses

To maximise power, the 12 participants who received a primary A.A.I. classification of unresolved were allocated to their secondary classification group, giving a total overall sample of 28 (43%; 17 women) secure-autonomous, 23 (32%; 13 women) dismissing, 12 (18%; 8 women) preoccupied, and 2 (3%; 1 woman) cannot classify. Given that an unresolved primary classification is arrived at on the basis of the individual's discourse only about specific events relating to loss or trauma, using the secondary classifications for these

individuals means that all participants were grouped according to the discourse pattern shown throughout the interview as a whole (for further discussion of this issue see Lyons-Ruth, Yellin, Melnick, & Atwood, 2005). The cannot classify transcripts were given primary classifications of CC/U/E2/Ds2 and CC/U/E3/Ds2.

The three-category distribution was similar to those reported in comparable samples of young adults (Allen, 1993; Kobak & Sceery, 1988; Main, van IJzendoorn, & Hesse, 1993). Three-way A.A.I. classification was unrelated to gender, $\chi^2(2) = 0.34$, n.s.

The sample's (N=64) mean score on the CTQ was 35.4 (SD=12.7; range=24-101) and the mean BDI score was 9.9 (SD=9.2; range=0-42). The mean scores, standard deviations and ranges for each attachment category are indicated in Table 4.1. No significant differences in BDI or CTQ scores were found between the main attachment categories ($\chi^2(2)$ =47.8, n.s.; $\chi^2(2)$ = 42.6, n.s.).

Table 4.1: Descriptives for BDI and CTQ scores as a function of Attachment (N=64)

	BDI			CTQ		
	Mean	SD	Range	Mean	SD	Range
Dismissing	8.43	8.40	0-24	33.61	8.22	24-57
Secure	8.39	6.14	0-24	32.61	6.02	25-48
Preoccupied	12.75	12.36	1-42	36.00	9.08	27-62

All variables assessing the phenomenological properties of the memories were normally distributed.

4.3.2 Relations between A.A.I. Classification and Earliest Memory

The relation between attachment state of mind and the valence of the earliest memory was investigated using χ^2. Of the 22 dismissing participants who reported on the valence of their first memory, 2 reported that the memory was negative, compared with 5 of the 28 secure-autonomous participants, and 3 of the 12 preoccupied participants. Three-way

A.A.I. classification was not related to the valence of the earliest memory, $\chi^2(2) = 1.59$, n.s., w = 0.16. Dismissing group individuals did not differ from those in the combined secure and preoccupied groups in the valence of the earliest memory, $\chi^2(1) = 1.34$, n.s., w = 0.15.

Mean scores on the ratings of the phenomenological properties of the earliest memory are shown in Table 4.1 with respect to main three-way A.A.I. classification.

Table 4.2: Mean Scores for the Phenomenological Characteristics of the Earliest Memory as a Function of Attachment and Gender (N=63)

	Dismissing		Secure		Preoccupied	
	Men	Women	Men	Women	Men	Women
Mean General Rehearsal	2.90 *0.71*	3.30 *0.89*	2.07 *0.75*	3.73 *0.75*	3.47 *0.75*	3.13 *0.59*
Mean Importance	2.78 *0.94*	3.34 *0.92*	2.73 *0.84*	3.58 *0.59*	2.82 *0.78*	3.77 *0.91*
Mean Vividness	3.73 *0.83*	3.71 *0.42*	4.02 *0.70*	4.55 *0.46*	4.17 *0.32*	4.14 *0.54*
Mean Emotional Intensity at Encoding	3.21 *0.75*	3.73 *0.47*	3.37 *0.71*	3.65 *0.59*	3.43 *0.68*	4.21 *0.40*
Mean Emotional Valence	3.09 *0.45*	3.03 *0.43*	2.88 *0.17*	3.05 *0.36*	2.96 *0.20*	3.14 *0.67*
Mean Specificity	4.00 *0.74*	3.84 *0.86*	4.06 *0.56*	4.37 *0.66*	4.18 *0.80*	4.45 *0.66*
Mean Emotional Intensity at Recall	2.20 *1.24*	2.61 *0.72*	2.0 *0.80*	2.85 *0.91*	2.86 *0.81*	3.40 *0.75*
Mean Self-relevance	2.74 *1.07*	2.88 *0.97*	2.59 *0.88*	3.11 *0.61*	2.90 *0.70*	3.30 *0.83*

Standard deviations are in italics.

Predictors of participants' ratings of the properties of the earliest memory were explored in a series of step-wise hierarchical regression analyses. We chose regression analysis in order to investigate whether depression and previous experience of trauma were independent predictors of any of the memory measures, and also to establish whether any effect of A.A.I. classification was independent of these factors as well as gender. In each regression, gender was entered at the first step, scores on the BDI and CTQ abuse/neglect scale entered at the second step, with A.A.I. classification entered at the final step. The results of these regressions are summarised in 4.3. As Table 4.3 shows, A.A.I. classification did not predict variance in any of the ratings of the phenomenological properties of earliest memories.

For ratings of cued non-attachment related memories the CTQ and BDI scores predicted the intensity of emotion at the time of encoding. A one-way ANOVA showed a significant main effect of the CTQ scores for intensity of emotion at encoding, $F(22,64)=1.96$, $p<0.05$, $\eta^2 = .71$. For the BDI scores the one-way ANOVA showed a main effect for intensity at encoding $F(23,64)=23.95$, $p<0.005$, $\eta^2 = .71$. Participants with the highest scores on the CTQ and BDI scored their childhood memories as being most intense at the time of encoding.

Table 4.3: Results of Multiple Linear Regression Analyses for Predictors of the Phenomenological Properties of the Earliest Memory (N=63)

	Step 1 ΔR^2	Gender (β)	Step 2 ΔR^2	BDI (β)	CTQ (β)	Step 3 ΔR^2	A.A.I. (β)
Rehearsal	.01	.11	.02	-.07	-.08	.02	.14
Importance	.12**	.34**	.08*	-.20	-.13	.00	.01
Vividness	.01	.09	.05	-.26[b]	.05	.00	-.01
Intensity at encoding	.05[a]	.23[a]	.02	-.15	.17	.01	.07
Specificity	.00	.02	.01	.11	-.09	.04	.21
Intensity at recall	.00	.05	.02	-.01	-.11	.00	.07
Self-relevance	.00	.04	.09*	-.35*	-.15	.00	.01

[a] $p = .08$, [b] $p = .09$, * $p < .05$, ** $p < .01$.

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4.3.3 Relations between A.A.I. Classification and Recall in Response to Attachment-Related Cue Words

Scores for the memories recalled in response to the attachment-related cue words are shown in Table 4.4 as a function of A.A.I. classification. Predictors of measures of cued attachment-related memories were investigated in a series of regression analyses, with gender entered at the first step, scores on the BDI and CTQ abuse/neglect scale entered at the second step, and A.A.I. classification entered at the final step. The results of these regressions are summarised in Table 4.5.

Table 4.4: Scores for the Memories Recalled in response to the Attachment-Related Cue Words as a Function of Attachment (N=63)

	Dismissing		Secure		Preoccupied	
	Men	Women	Men	Women	Men	Women
Total number of Memories	6.80 *1.23* (6.84)	7.46 *0.88* (7.46)	7.55 *0.52* (7.52)	7.24 *0.83* (7.24)	7.50 *0.58* (7.49)	7.88 *0.35* (7.88)
Recall latency	10.39 *4.74* (10.78)	15.71 *7.97* (15.89)	12.28 *6.50* (12.01)	11.12 *6.64* (11.20)	11.41 *2.09* (11.18)	9.96 *4.88* (9.50)
Mean General Rehearsal	3.0 *0.88* (3.02)	3.52 *0.84* (3.50)	3.27 *0.84* (3.25)	3.89 *0.80* (3.89)	3.88 *1.13* (3.84)	3.39 *0.55* (3.42)
Mean Importance	3.24 *0.87* (3.23)	3.63 *0.84* (3.57)	3.36 *1.06* (3.38)	3.97 *0.72* (3.97)	3.44 *0.87* (3.42)	4.31 *0.80* (4.41)
Mean Vividness	3.86 *0.97* (3.84)	3.84 *0.57* (3.83)	4.03 *0.49* (4.05)	4.50 *0.66* (4.51)	4.25 *3.85* (4.24)	4.40 *0.60* (4.39)
Mean Emotional Intensity at Encoding	3.59 *1.02* (3.51)	4.00 *0.61* (3.94)	4.00 *0.72* (4.07)	4.03 *0.86* (4.02)	3.81 *0.84* (3.81)	4.71 *0.44* (4.83)
Mean Specificity	4.56 *1.03* (4.57)	4.21 *0.97* (4.22)	4.36 *0.71* (4.36)	4.46 *0.69* (4.47)	4.28 *0.71* (4.16)	4.17 *0.51* (4.24)
Mean Emotional Intensity at Recall	2.30 *1.31* (2.25)	2.75 *0.90* (2.63)	2.32 *0.94* (2.38)	3.02 *0.76* (3.00)	3.63 *0.90* (3.09)	3.10 *0.82* (3.87)
Mean Self-relevance	2.77 *0.56* (3.04)	3.17 *1.03* (3.25)	3.03 *0.98* (3.45)	3.44 *0.72* (3.72)	3.30 *0.79* (3.62)	3.61 *0.91*

Standard deviations are in italics and means adjusted for control variables are in parentheses

Table 4.5: Results of Multiple Linear Regression Analyses for Predictors of the Cued Attachment-Related Memories (N=63)

	Step 1	Gender	Step 2	BDI	CTQ	Step 3	A.A.I.
	ΔR^2	(β)	ΔR^2	(β)	(β)	ΔR^2	(β)
Number of memories	.02	.12	.03	.18	-.21	.05	.22[b]
Latency of recall	.01	.08	.02	.11	-.19	.03	.19
Rehearsal	.05[a]	.23[a]	.02	-.04	-.10	.02	.14
Importance	.11**	.33**	.02	.09	-.15	.04*	.21[c]
Vividness	.03	.18	.01	.07	-.08	.08*	.28*
Intensity at encoding	.05[b]	.22[b]	.01	-.17	.10	.07*	.26*
Specificity	.00	.05	.01	.08	-.02	.00	.05
Intensity at recall	.09*	.30*	.02	-.12	-.02	.11**	.31*
Self-relevance	.06[a]	.24[a]	.03	-.21	.16	.05[a]	.23[a]

[a] $p = .06$, [b] $p = .08$, [c] $p = .09$, * $p < .05$, ** $p < .01$.

As Table 4.5 shows, three-way A.A.I. classification approached significance (p = .081) as a predictor of total number of attachment-related memories recalled, and accounted for 5% of the variance. However, a post-hoc one-way ANOVA showed no effect of A.A.I. classification, $F(2, 60) = 1.88$, n.s., $\acute{\eta}^2 = .059$.

For latency of recall of memories in response to the attachment-related cues, the regression identified no significant predictors (see Table 4.5).

Turning to ratings of the phenomenological properties of the attachment-related memories, as shown in Table 4.5, A.A.I. classification was a significant predictor of scores on (a) vividness (accounting for 8% of the variance), (b) emotional intensity at encoding (accounting for 6% of the variance), and (c) emotional intensity at recall (accounting for 9% of the variance). A.A.I. classification also approached significance as a predictor of scores on importance (accounting for 3% of the variance) and self-relevance (accounting for 5% of the variance). Post-hoc one-way ANOVAs showed a significant effect of A.A.I. classification for vividness, $F(2, 60) = 3.80$, $p < .05$, $\acute{\eta}^2 = .113$, and for emotional intensity at recall, $F(2, 60) = 3.29$, $p < .05$, $\acute{\eta}^2 = .106$. Pair-wise comparisons showed that dismissing individuals rated their attachment-related memories as less vivid than those in secure and preoccupied groups. For emotional intensity at recall, preoccupied individuals rated their emotions as being more intense than individuals in the dismissing group. Post-hoc ANOVAs showed no effect of A.A.I. classification on (a) importance, $F(2, 60) = 1.66$, n.s., $\acute{\eta}^2 = .052$, (b) emotional intensity at encoding, $F(2, 60) = 2.18$, n.s., $\acute{\eta}^2 = .067$, and (c) self-relevance, $F(2, 60) = 1.59$, n.s., $\acute{\eta}^2 = .051$.

4.3.4. Relations between A.A.I. Classification and Recall in Response to Negative-Attachment Cue Words

Descriptive statistics for recall in response to the negative attachment-related cues are shown in Table 4.6. Predictors of the number of memories recalled in response to the negative attachment-related cues were investigated using regression analyses, the results of which are summarised in Table 4.7.

As shown in Table 4.7, three-way A.A.I. classification approached significance as a predictor, accounting for 5% of the variance. A post-hoc one-way ANOVA showed no effect of A.A.I. classification, $F(2, 60) = 2.30$, n.s., $\acute{\eta}^2 = .071$. For latency of recall in response to the negative attachment-related, A.A.I. classification was the only independent predictor (see Table 4.7), accounting for 7% of the variance. However, a post-hoc one-way ANOVA showed no significant effect of A.A.I. classification, $F(2, 60) = 2.29$, n.s., $\acute{\eta}^2 = .071$.

The regressions for predictors of the phenomenological properties of negative attachment-related memories are also summarised in Table 4.7. As shown in Table 4.7, A.A.I. classification was a significant predictor of (a) emotional intensity at encoding (accounting for 7% of the variance), and (b) emotional intensity at recall (accounting for 7% of the variance). In addition, A.A.I. classification approached significance as a predictor of scores for importance (accounting for 5% of the variance). Post-hoc one-way ANOVAs showed no main effect of A.A.I. classification on scores for emotional intensity at encoding, $F(2, 60) = 2.28$, n.s., $\acute{\eta}^2 = .071$, or importance, $F(2, 60) = 1.88$, n.s., $\acute{\eta}^2 = .059$, and a marginally significant effect of A.A.I. classification on emotional intensity at recall, $F(2, 60) = 2.44$, $p = .096$, $\acute{\eta}^2 = .075$.

Table 4.6: Mean Scores for the Phenomenological Characteristics for Negative Attachment Memories (N=63)

	Dismissing		Secure		Preoccupied	
	Men	Women	Men	Women	Men	Women
Total number of Memories	3.40 0.70 (3.60)	3.62 0.65 (7.46)	3.60 0.52 (3.59)	3.53 0.51 (7.24)	3.67 0.58 (7.49)	4.00 0.0 (7.88)
Recall latency	10.09 6.43 (10.78)	15.04 8.48 (15.89)	11.34 6.74 (12.01)	8.92 4.64 (11.20)	8.36 3.27 (11.18)	8.63 4.82 (9.50)
Mean General Rehearsal	3.66 1.43 (3.02)	3.73 0.97 (3.50)	3.29 1.15 (3.25)	4.16 0.93 (3.89)	4.19 1.35 (3.84)	3.59 0.61 (3.42)
Mean Importance	3.57 0.95 (3.23)	3.65 1.03 (3.57)	3.53 0.99 (3.38)	4.11 0.89 (3.97)	3.44 1.50 (3.42)	4.56 0.82 (4.41)
Mean Vividness	4.22 1.40 (3.84)	4.22 0.98 (3.83)	4.48 0.59 (4.05)	4.75 0.74 (4.51)	4.64 0.92 (4.24)	4.53 0.79 (4.39)
Mean Emotional Intensity at Encoding	4.21 1.41 (3.51)	4.34 0.76 (3.94)	4.65 0.76 (4.07)	4.53 1.14 (4.02)	4.69 1.33 (3.81)	5.22 0.53 (4.83)
Mean Specificity	5.32 1.13 (4.57)	5.18 1.19 (4.22)	5.39 0.90 (4.36)	5.16 1.09 (4.47)	5.89 0.19 (4.16)	4.91 1.31 (4.24)
Mean Emotional Intensity at Recall	2.58 1.26 (2.25)	2.74 1.06 (2.63)	2.56 1.02 (2.38)	3.06 0.82 (3.00)	3.13 1.43 (3.09)	3.59 1.32 (3.87)
Mean Self-relevance	3.21 0.92 (3.04)	3.27 1.18 (3.25)	3.27 0.98 (3.45)	3.72 0.79 (3.72)	3.86 1.46 (4.03)	3.56 1.16 (3.62)

Standard deviations are in italics and means adjusted for control variables are in parenthese

Table 4.7: Results of Multiple Linear Regression Analyses for Predictors of the Cued Negative Attachment-Related Memories (N=63)

	Step 1 ΔR^2	Gender (β)	Step 2 ΔR^2	BDI (β)	CTQ (β)	Step 3 ΔR^2	A.A.I. (β)
Number of memories	.01	.09	.04	.18	-.20	.05	.22[b]
Latency of recall	.00	.04	.06	.20	-.29[a]	.07[b]	.28*
Rehearsal	.05[a]	.23[a]	.02	-.04	-.10	.02	.14
Importance	.05[c]	.21[c]	.01	.13	-.10	.05*	.22[b]
Vividness	.01	.11	.02	.16	-.08	.01	.12
Intensity at encoding	.01	.07	.00	-.06	.03	.07*	.27*
Specificity	.02	.15	.01	-.07	-.04	.00	.02
Intensity at recall	.03	.17	.01	-.01	-.09	.06*	.26*
Self-relevance	.01	.08	.01	-.02	.12	.02	.16

[a] $p = .06$, [b] $p = .08$, * $p < .05$.

4.3.5 Relations between A.A.I. Classification and Recall in Response to Non-Attachment Cue Words

Table 4.8 shows the relevant descriptive data. Table 4.9 summarises the regression analyses investigating predictors of participants' volume and latency of recall in response to the non-attachment cue words. As shown in Table 4.9, there were no independent predictors of (a) number of memories recalled in response to the non-attachment cues, or (b) latency of recall in response to the non-attachment cues.

Table 4.8 Mean Scores for the Phenomenological Characteristics of Non-Attachment Memories (N=63)

	Dismissing		Secure		Preoccupied	
	Men	Women	Men	Women	Men	Women
Total number of Memories	11.9 1.45	12.31 1.18	12.4 0.69	12.53 0.72	12.00 1.00	12.63 0.74
	(12.00)	(12.34)	(12.31)	(12.54)	(11.06)	(12.56)
Recall Latency	8.52 3.62	11.83 6.92	11.00 4.34	7.80 4.80	8.17 1.45	11.78 6.82
	(8.05)	(12.22)	(11.36)	(7.90)	(8.52)	(10.96)
Mean General rehearsal	2.79 0.69	3.08 0.93	2.91 0.78	3.66 0.79	3.26 0.65	2.89 0.73
	(2.91)	(3.08)	(2.83)	(3.66)	(3.15)	(2.91)
Mean Importance	2.47 1.17	3.07 1.00	3.28 0.89	3.36 0.95	2.17 0.67	3.34 0.12
	(2.69)	(3.05)	(2.10)	(3.36)	(2.04)	(3.40)
Mean Vividness	3.62 0.88	3.55 0.43	4.12 0.82	4.58 0.46	3.79 0.23	3.86 0.79
	(3.58)	(3.50)	(4.15)	(4.57)	(3.84)	(3.97)
Mean Emotional Intensity at Encoding	2.97 0.63	3.45 0.59	2.98 0.94	3.43 0.86	3.04 0.61	3.76 0.36
	(2.92)	(3.47)	(3.00)	(3.43)	(3.19)	(3.76)
Mean Specificity	3.68 0.62	3.58 0.95	3.92 0.57	4.33 0.82	4.51 0.95	4.48 0.93
	(3.68)	(3.49)	(3.94)	(4.32)	(4.48)	(4.66)
Mean Emotional Intensity at Recall	2.11 1.38	2.47 0.76	1.75 0.87	2.76 1.06	2.37 0.61	3.19 0.94
	(2.24)	(2.41)	(1.62)	(2.74)	(2.38)	(3.33)
Mean Self-relevance	2.19 0.67	2.64 0.96	2.23 0.90	2.95 0.73	2.42 0.62	2.99 0.85
	(2.26)	(2.61)	(2.17)	(2.95)	(2.41)	(3.06)

Table 4.9: Results of Multiple Linear Regression Analyses for Predictors of the Cued Non-Attachment Memories (N=63)

	Step 1 ΔR^2	Gender (β)	Step 2 ΔR^2	BDI (β)	CTQ (β)	Step 3 ΔR^2	A.A.I. (β)
Number of memories	.03	.16	.00	.02	-.02	.01	.12
Latency of recall	.00	.03	.03	.14	.06	.00	.22
Rehearsal	.07*	.26*	.02	-.11	-.07	.00	.06
Importance	.18***	.43***	.01	-.09	-.07	.01	.08
Vividness	.02	.16	.02	-.14	-.01	.07*	.26*
Intensity at encoding	.11**	.33	.11**	-.29*	-.39**	.01	.13
Specificity	.02	.15	.03	-.01	-.15	.14*	.36**
Intensity at recall	.11**	.33**	.03	-.21	-.06	.05ᵃ	.22ᵃ
Self-relevance	.13**	.35**	.01	-.16	.06	.03	.16

[a] $p = .06$, * $p < .05$, ** $p < .01$, *** $p < .001$.

With respect to the phenomenological properties of the non-attachment memories, as shown in Table 4.8, A.A.I. classification independently predicted scores for (a) specificity (accounting for 13% of the variance), and (b) vividness (accounting for 7% of the variance), and approached significance as a predictor of scores for emotional intensity at recall (accounting for 5% of the variance). Post-hoc one-way ANOVAs showed a significant main effect of A.A.I. classification on scores for specificity, $F(2, 60) = 4.42$, $p < .025$, $\acute{\eta}^2 = .129$, and vividness, $F(2, 60) = 2.28$, $p < .001$, $\acute{\eta}2 = .222$, but no main effect on emotional intensity at recall, $F(2, 60) = 2.11$, n.s., $\acute{\eta}^2 = .066$. Pairwise comparisons showed that (a) dismissing individuals rated non-attachment memories as less specific than those in the secure and the preoccupied groups, and (b) dismissing individuals rated non-attachment memories as less vivid than those in the secure group.

4.3.6 Gender Differences in the Phenomenological Properties of Cued Autobiographical Memories

As the regressions reported in Tables 4.5. 4.7 and 4.9 show, gender independently predicted scores on a number of variables. With respect to the memories recalled in response to attachment-related cues, gender predicted (a) importance (accounting for 9% of the variance), (b) emotional intensity at recall (accounting for 9% of the variance), and (c) self-relevance (accounting for 6% of the variance). Post-hoc t tests showed the following gender differences for ratings of attachment-related memories: (a) women (M = 3.95, SD = 0.81) rated memories as more important than did men (M = 3.37, SD = 0.93), $t(63) = 2.67$, $p < .01$, $d = 0.67$; (b) women (M = 3.08, SD = 0.88) rated memories as more emotionally intense at recall than did men (M = 2.49, SD = 1.10), $t(63) = 2.41$, $p < .025$, $d = 0.60$; and (c) a non-significant trend for women (M = 3.42, SD = 0.89) to rate memories as more self-relevant than did men (M = 3.03, SD = 0.83), $t(63) = 1.79$, $p = .079$, $d = 0.45$.

For ratings of memories recalled in response to the non-attachment cues, gender predicted (a) importance (accounting for 19% of the variance), (b) emotional intensity at encoding (accounting for 12% of the variance), (c) emotional intensity at recall (accounting for 11% of the variance), and (d) self-relevance (accounting for 12% of the variance). Post-hoc t tests showed the following gender differences for ratings of non-attachment memories: (a) women (M = 3.31, SD = 0.90) rated memories as more important than did men (M = 2.46, SD = 0.96), t(63) = 3.65, p < .001, d = 0.91; (b) women (M = 3.57, SD = 0.76) rated memories as more emotionally intense at encoding than did men (M = 3.07, SD = 0.77), t(63) = 2.57, p < .025, d = 0.65; (c) women (M = 2.81, SD = 1.01) rated memories as more emotionally intense at recall than did men (M = 2.10, SD = 1.09), t(63) = 2.72, p < .01, d = 0.68; and (d) women (M = 2.92, SD = 0.91) rated memories as more self-relevant than did men (M = 2.34, SD = 0.87), t(63) = 2.50, p < .025, d = 0.65.

4.3.7 Differences in the Reported Characteristics of Attachment-Related Versus Non-Attachment Memories

A.A.I.-related differences between the characteristics of memories recalled in response to the attachment-related and non-attachment cues were investigated in a series of 3 attachment (A.A.I. classification) × 2 memory type (attachment-related, non-attachment) repeated measures ANOVAs. The relevant descriptive statistics are shown in Tables 4.4 and 4.8.

For latency of recall, there was a main effect of memory type, F(1, 60) = 5.95, p < .025, but no effect of A.A.I. classification, F(2, 60) = 0.60, and no memory type × attachment interaction, F(2, 60) = 1.75, n.s. A post-hoc paired t test showed that individuals were slower at recalling memories in response to attachment-related cues than to non-attachment cues, t(64) = 3.14, p < .005.

For frequency of rehearsal, there was a main effect of memory type, F(1, 60) = 22.24, p < .001, but no effect of A.A.I. classification, F(2, 60) = 1.31, and no memory type ×

attachment interaction, F(2, 60) = 0.57, n.s. A post-hoc paired t test showed that attachment-related were reported to have been more frequently rehearsed than non-attachment memories, t(64) = 4.40, p < .001.

For importance, there was a main effect of memory type, F(1, 60) = 63.29, p < .001, but no effect of A.A.l. classification, F(2, 60) = 0.89, and no memory type × attachment interaction, F(2, 60) = 0.79, n.s. A post-hoc paired t test showed that attachment-related memories were rated as more important than non-attachment memories, t(64) = 8.23, p < .001.

For vividness, there was a main effect of memory type, F(1, 60) = 8.52, p < .005, a main effect of A.A.l. classification, F(2, 60) = 6.83, p < .005, and a significant memory type × attachment interaction, F(2, 60) = 3.58, p < .05. A post-hoc paired t test showed that attachment-related memories were rated as more important than non-attachment memories, t(64) = 2.13, p < .05. Figure 4.1 shows the interaction.

Figure 4.1: Memory Type × Attachment Interaction for Vividness Ratings
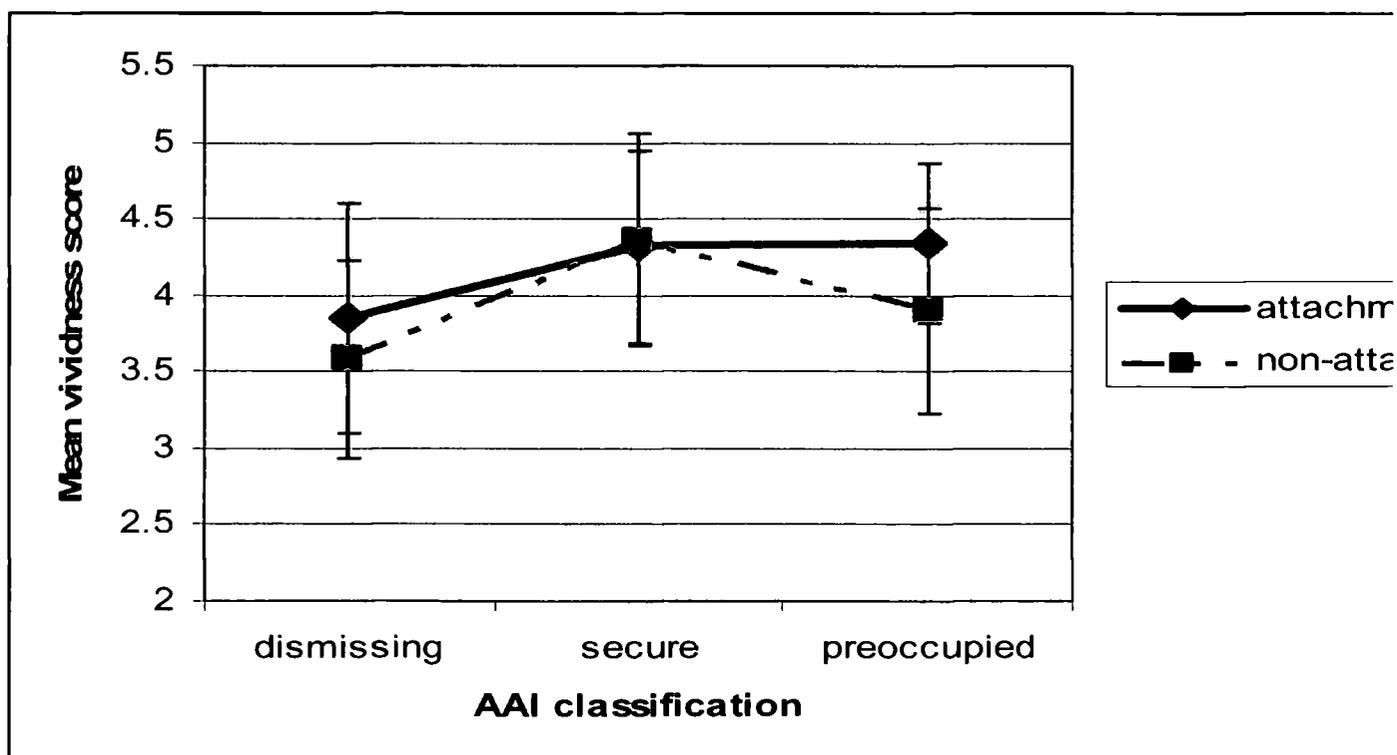
To explore the interaction further, post-hoc paired t tests comparing vividness ratings for the attachment-related versus non-attachment memories for the three separate A.A.I. groups showed no difference for individuals in the dismissing, $t(22) = 1.92$, n.s., $d = 0.39$, secure, $t(27) = 0.44$, n.s., $d = 0.06$, and preoccupied, $t(11) = 2.62$, n.s., $d = 0.75$. However, the effect size for this comparison in preoccupied individuals is medium to large (Cohen, 1988), suggesting that preoccupied individuals tended to rate attachment-related memories as more vivid than non-attachment memories.

For emotional intensity at encoding, there was a main effect of memory type, $F(1, 60) = 37.40$, $p < .001$, but no effect of A.A.I. classification, $F(2, 60) = 2.15$, and no memory type × attachment interaction, $F(2, 60) = 0.43$, n.s. A post-hoc paired t test showed that attachment-related memories were rated as more emotionally intense at the time of encoding than non-attachment memories, $t(64) = 6.40$, $p < .001$.

For specificity, there was a main effect of memory type, $F(1, 60) = 7.34$, $p < .01$, no effect of A.A.I. classification, $F(2, 60) = 1.39$, and a significant memory type × attachment interaction, $F(2, 60) = 5.21$, $p < .01$. A post-hoc paired t test showed that attachment-related memories were rated as more specific than non-attachment memories, $t(64) = 3.13$, $p < .005$. The interaction is shown in Figure 4.2.

Figure 4.2: Memory Type × Attachment Interaction for Specificity Ratings
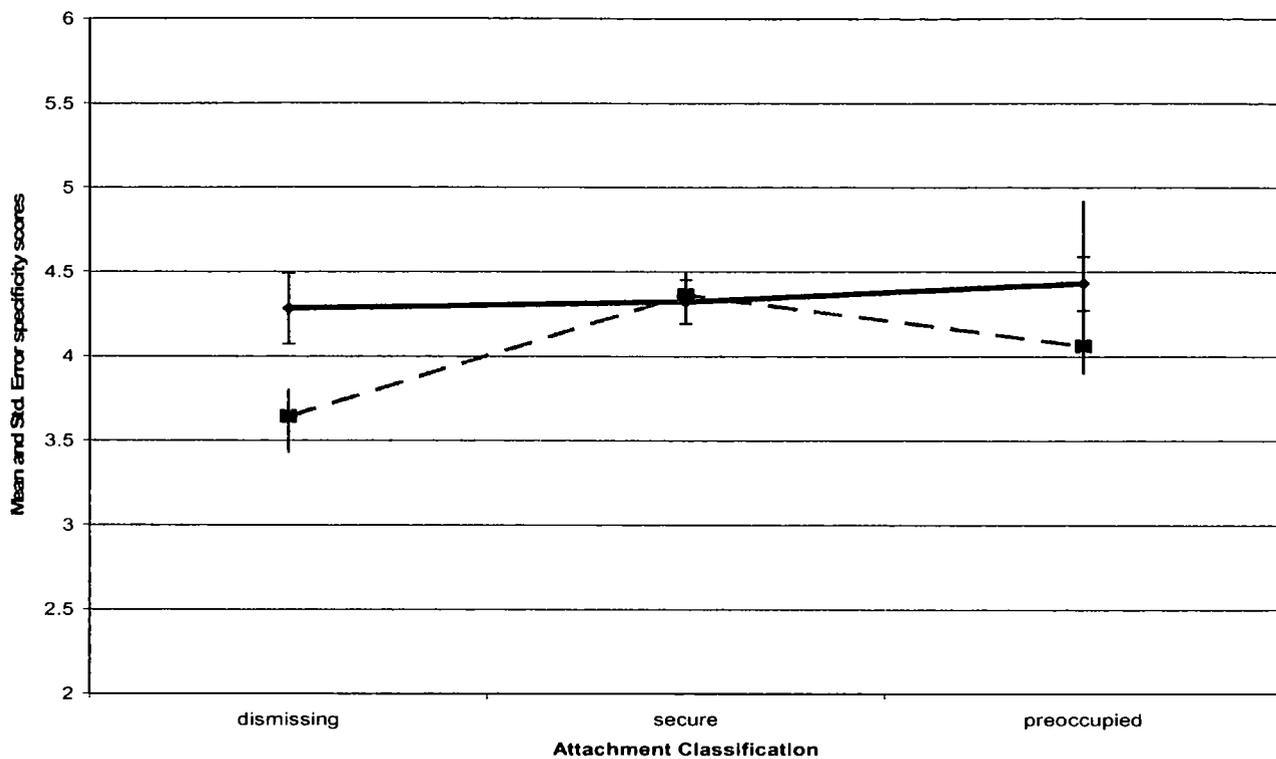
To explore the interaction further, post-hoc paired t tests comparing specificity ratings for the attachment-related versus non-attachment memories were conducted separately for the three A.A.I. groups. Dismissing individuals reported attachment-related memories to be more specific than non-attachment memories, $t(22) = 4.26$, $p < .001$, $d = 0.83$. Ratings for the specificity of the attachment-related versus non-attachment memories did not differ for individuals in the secure, $t(27) = 1.94$, n.s., $d = 0.38$, and preoccupied, $t(11) = 0.57$, n.s., $d = 0.18$, groups.

For emotional intensity at recall, there was a main effect of memory type, $F(1, 60) = 12.23$, $p < .001$, and a main effect of A.A.I. classification, $F(2, 60) = 3.16$, $p < .05$, but no memory type × attachment interaction, $F(2, 60) = 0.32$, n.s. A post-hoc paired t test showed that attachment-related memories were rated as more emotionally intense at the time of recall than non-attachment memories, $t(64) = 3.46$, $p < .001$.

Finally, for self-relevance, there was a main effect of memory type, F(1, 60) = 44.45, p < .001, but no effect of A.A.I. classification, F(2, 60) = 1.30, and no memory type × attachment interaction, F(2, 60) = 0.12, n.s. A post-hoc paired t test showed that attachment-related memories were rated as more emotionally intense at the time of encoding than non-attachment memories, t(64) = 6.76, p < .001.

4.4 Discussion

The results of Study Two showed that A.A.I. classification was unrelated to the valence of the earliest memory and to the reported phenomenological properties of the earliest memory. These findings thus replicate those of Study One using a narrative assessment of adult attachment. With respect to the findings for the cued recall procedure, no strong evidence emerged for differences between the A.A.I. groups in volume or latency of recall in response to the attachment-related cues as a whole or to the subset of negative attachment cues. Although A.A.I. classification was identified as an independent predictor of latency of recall in response to the negative attachment cues, a post-hoc ANOVA showed no significant effect of A.A.I. classification. A.A.I. classification was unrelated to volume and latency of recall in response to the non-attachment cues. However, a different pattern of findings emerged with regard to A.A.I.-related differences in ratings of the phenomenological properties of the memories recalled during the cued recall procedure.

A.A.I. classification emerged as a significant predictor of three of the seven phenomenological properties (vividness, emotional intensity at encoding, emotional intensity at recall) of memories recalled in response to the attachment-related cues overall, and was a marginally significant predictor on two further scales (importance and self-relevance). For all scales, dismissing individuals scored lowest, and preoccupied individuals scored highest, and post-hoc ANOVAs showed significant effects of A.A.I. classification on vividness and emotional intensity at recall. Dismissing individuals rated their attachment-

related memories as less vivid than individuals in both the secure and the insecure groups, with a significant pairwise contrast between the dismissing and preoccupied group for emotional intensity at recall. A similar, although somewhat weaker, pattern of A.A.I.-related differences emerged for ratings of the subset of negative attachment-related memories. A.A.I. classification was identified as an independent predictor of scores for emotional intensity both at encoding and recall, and was a marginally significant predictor of scores for importance. However, post-hoc ANOVAs failed to find any main effect of A.A.I. classification on any of the scales.

The results from ratings of the phenomenological properties of the memories recalled in response to the non-attachment cues showed that the effects of A.A.I. classification on autobiographical recall were not confined to attachment-related material. A.A.I. classification was an independent predictor of ratings of the specificity and vividness of non-attachment memories, and was a marginally significant predictor of how these memories were rated for emotional intensity at recall. Post-hoc main effects of A.A.I. classification were observed for both specificity and vividness, with pariwise comparisons showing that dismissing individuals rated these memories as less specific than their counterparts in both the secure and the preoccupied groups, with dismissing individuals also scoring lower than those in the secure group on vividness.

Finally, latency of recall and the reported phenomenological properties of the attachment-related versus non-attachment memories were compared for each of the three attachment groups. Dismissing individuals rated attachment-related memories as more specific, important, emotionally intense at the time of encoding and self-relevant than non-attachment memories. Individuals classified as dismissing were no slower at recalling attachment memories than non-attachment memories, and their scores for the two types of memories did not differ in terms of vividness, frequency of rehearsal, and emotional intensity at recall. In comparing the non-attachment memories and the subset of negative

attachment-related memories, dismissing individuals showed no difference only on latency and scores for emotional intensity at recall. For all of the other phenomenological properties, the negative attachment-related memories were rated higher than those of the non-attachment memories.

It is important to note that all of the effects of A.A.I. classification on autobiographical recall were independent of gender, concurrent depression, and experience of trauma during childhood. Thus, the findings reported in this chapter could not be confounded by individuals' current psychological state or earlier traumatic experiences making them less willing or able to recall events from their childhoods, or by gender differences in autobiographical recall observed in previous research (Davis, 1999; Friedman & Pines, 1991; Mullen, 1994; Schwartz, 1984) and in the studies reported here.

The main aim of Study Two was to establish whether observed security-related differences in autobiographical recall are best characterised in terms of pre-emptive or post-emptive defence strategies. Recall that the results of Fraley and colleagues (Fraley & Brumbaugh, 2007; Fraley et al., 2000) as well as those of Study One suggested that the deficits in recall observed in dismissing and avoidant individuals indicated that they adopted a pre-emptive strategy. The lack of relation between A.A.I. classification and ratings of the phenomenological properties of the earliest memories reported here is also consistent with the conclusion that adult attachment impacts on the encoding of autobiographical memories rather than processing involved in their recall. However, a number of studies on earliest memories found that these are relatively neutral emotionally (Mullen, 1994; Howes, Siegel and Brown 1993). The findings of Study 2 may therefore have been due to the type of memory evoked by the participants, and the irrelevance of the earliest memories to the attachment system. In fact, an exploration of the content of the earliest memories recalled suggested that they were relatively trivial in content and rarely referred to attachment figures.

The findings from the cued-recall procedure which indicated that dismissing individuals do not differ from their secure and preoccupied counterparts with regard to volume or latency of recall, but rather downplay the importance of the memories once recalled also suggests that a conclusion about a pre-emptive defence may be premature. Dismissing individuals' ratings of their attachment-related memories as less vivid, and in particular the fact that they portrayed these memories as less emotionally intense during recall, suggest they are adopting a post-emptive defence strategy. In order to explore in potential attachment-related differences in defence strategy greater detail, Study Three investigated security-related differences in reports of imagined events in the future.

A significant limit of the study here reported is as in the studies reported in the previous chapter that it has largely relied on explicit self-reports when evaluating the memories . It is therefore questionable that it can adequately assess the unconscious mechanisms underlying the construct of internal working models. In fact, no attachment-related differences were found on latency of retrieval which is by definition an implicit measure of ease of memory recall and which could provide stronger bases for the results. Further studies which integrate implicit measures of memory are therefore warranted.

Finally with regards to the control variables depression and report of childhood trauma the participants who indicated having had a higher number of traumatic experiences during childhood and who had scores indicating clinical depression reported more emotionally intense experiences at the time of encoding of non-attachment related cued memories. However the participants did not differ significantly when attachment-related cues were used, nor on the emotional intensity at recall. A number of investigations have indicated that individuals who have a history of traumatic experiences tend to have memory deficits (see for example, Hunter & Andrews, 2002; Edwards, Fivush, Anda, Felliti, & Nordenberg, 2001). Maltreatment histories have been associated with less specific autobiographical memories (Kukyen & Brewin, 1995; Edwards et al., 2001). These

dysfluences have been attributed to deficits during both memory encoding, monitoring and retrieval by various authors (see for e.g., Williams & Broadbent, 1986; McNally, 1997). Of particular relevance may be Windman and Krueger's (1998) hypothesis that traumatised individuals may interpret relatively neutral information as trauma-related, and thus as more emotionally intense.

Chapter 5: Relations between Attachment

State of Mind and 'Memories' of the Future

5.1 Introduction

The first aim of Study Three was to investigate security-related differences in the self-reported phenomenological characteristics of events which individuals indicated as possibly occurring in the future. Assessing imagined future events in terms of how easily events could be formulated and individuals' ratings of the phenomenological properties of future events enabled us to investigate whether dismissing individuals adopt different types of defence strategies depending on whether or not the material is from their own childhoods. By asking individuals to imagine events in the future, one may be able to tap into post-emptive defences more obviously, since although the material will be influenced by past encoded events, the events themselves have not been encoded because they are imaginary.

The second aim of Study Three was to investigate how autobiographical recall of actual events relates to formulation of imagined events in the future. As discussed in Chapter One, Tulving (1983) suggested that episodic memory not only referred to a hypothetical memory system, but that it was characterised by a specific type of conscious awareness known as autonoetic consciousness. Autonoetic consciousness is characterised by the subjective experience of existing in time (Wheeler, Stuss, & Tulving, 1997) by mediating an individual's projection into the past and future. It is postulated that episodic memory underlies the human ability to re-experience the past and pre-experience future autobiographical events. While numerous studies have been carried out investigating these properties regarding the past, to date, few studies have investigated the ability to pre-experience future events (Schacter, 2007a). Recently, a study reported common

phenomenological properties between remembering past experiences and 'pre-experiencing' future events (D'Argembeau & van der Linden, 2004). In particular, positive past and future events received higher ratings for experiencing than negative events. These authors recently extended their findings, demonstrating that individuals who were more able to generate visual imagery also reported a greater amount of sensorial details for both past and future events (D'Argembeau & van der Linden, 2006). Further, individuals who regulate emotion by 'suppressing' emotional expression reported fewer contextual and sensory details as well as emotions while remembering past events and imagining future events.

But it may be that looking at the population as a whole masks interesting security-related differences in relations between recall of the past and conjecture about the future. For example, as discussed in Chapter Two, attachment theory holds that the internal working models of individuals with dismissing and preoccupied attachment states of mind will be used to a greater extent than those of secure individuals in anticipating future experiences. The internal working models of insecure individuals are less flexible, and thus these individuals are expected to be more likely than those with a secure state of mind to use past events as template for future events. One could therefore hypothesise that properties of past events, both in terms of ease of recall and the reported characteristics of the memories, will be correlated with those of future events specifically in insecure individuals. Therefore the relations between how individuals recalled the past and imagined the future were investigated, as a function of attachment security.

In summary, Study Three investigated relations between A.A.I. classification and individuals' conjecture about events that could occur to them in the future in order to explore in greater depth the type of defence strategy that might best characterise attachment-related differences in autobiographical recall. Study Three also addressed how A.A.I. classification impacts on relations between recall of past events and imagined events in the

future. Given the lack of previous research on this topic, no directional hypotheses were made.

5.2 Method

5.2.1 Participants

Participants were the same 65 individuals who took part in Study Two (see page 85). Their A.A.I. classifications and data from the cued memory procedure described in Chapter Four were also used in Study Three.

5.2.2 Procedure

Participants were seen for a further testing during which they completed the Cued Future Memory Task. This task was administered before participants completed the Beck Depression Inventory and Childhood Trauma Questionnaire (se page 85). The Cued Future Memory Task was analogous to the cued recall procedure described in Study Two (see page 80) . As for the cued autobiographical memory task used in Study Two, cue words were selected from various previous studies (Hacque & Conway, 2001; Robinson, 1976; Semin & Smith, 1999; Williams & Broadbent, 1986; Williams, Ellis, Tyres, Healy, Rose, & MacLeod, 1996). The aim was to identify words that would cue attachment-related material and cues unrelated to attachment themes, while balancing each cue list for emotional tone and level of concreteness.

The 10 words chosen as cues were: baby, danger, proud, mother, ambulance, freedom, window, forgiving, lonely, letter. These words were rated dichotomously as attachment-related or non-attachment by the two experienced attachment researchers (Prof. Alessandra De Coro and Dr. Chiara Pazzagli) who had rated the cue words for Study 2 and who were blind to the study's hypotheses. They rated the following words as attachment-

related: baby, danger, mother, ambulance and lonely with an inter-rater agreement of $\square$ = 0.98.

The instructions for administering the Cued Future Memory Task were taken from the Autobiographical Memory Test (AMT; Williams & Broadbent, 2000). Participants were informed that they were going to be asked to imagine events that might happen to them in the future in response to each of 10 separate cue words. As in the AMT, participants were told that the imagined event recalled should be specific (i.e., related to a 24 hour period at most). As in Study Two, participants were asked to indicate verbally once they had formulated an event so that latencies could be timed accurately. Participants were given a maximum of 60 seconds to formulate a future 'memory'. If participants did not recall a future event after 60 seconds, as in Study 2, the next cue word was provided. The precise instructions were as follows: "Please try picture a situation that is related to the following words and describe it with as many words as possible. Try to picture a specific situation, that means the event should last a second, a minute, an hour, and no longer than at most a day. It is important to imagine a different situation for each word. I will be stop-watching how long it takes for an event to come to mind. As soon as you have an event, please tell me by raising your hand. It is important to try to retrieve a different memory for each word. I will be stop-watching how long it takes for a memory to come to mind. As soon as you have the memory please tell me, by raising your hand. Should nothing come to mind, we'll wait 60 seconds and then go on to the next word."

To familiarise participants with the task and to ensure that instructions had been understood, three practice trials were carried out, using the following cue words: car, embarrassed and grateful. Each cue word was read to the participant, the time stop-watched and the participant was asked to think of a possible future event and to recount it verbally. The investigator wrote down the event, which was also audio-taped.

Each future memory was rated using an adapted MCQ (see Appendix 13) given that various items from the version used in Studies One and Two were inappropriate for rating events in the future (e.g., specificity, importance, rehearsal). The adapted MCQ retained items on vividness, emotional intensity, valence of emotion and self-relevance. Additional dimensions were also added for rating future events, providing information on how easily participants found it to formulate the future event and how likely it was that the event would actually occur in the future. The MCQ items were as follows:

1. Vividness: "How vivid is this imagined event?"?" (0 = not at all; 6 = extremely vivid).

2. Emotional valence: "I believe my feelings would be: " (0 = very negative ; 6 = very intense).

3. Intensity of emotion: "I believe my feelings would be"" (0 = not at all intense; 6 = very intense).

4. Self-relevance: "This imaginary event reveals or says about me"?" (0 = not much; 6 = a lot).

5. Ease of formulation: "How easy was it to imagine this event?" (0 = not at all; 6 = very much so).

6. Likelihood of occurrence: "How likely is it that this event will happen?" (0 = not at all likely; 6 = extremely likely).

To avoid participant fatigue, after a set of 5cue words, each memory was recalled with the aid of the investigator's notes and participant and investigator filled out the MCQ questionnaire for each of the memories. This process continued until participants had reported and rated events in response to each of the 10 cue words. The order of presentation of the cue words was randomised across the participants.

Participants received scores for the total number of events reported in response to the attachment-related and non-attachment cue words. Participants also received an average

score for the latency of recall of the memories in response to the attachment-related, and non-attachment cues. Finally, average scores were calculated for each of the scales for the attachment-related and non-attachment cued memories.

5.3 Results

Descriptive statistics for volume and latency of recall and the phenomenological properties of the attachment-related and non-attachment cued future memories are shown in Table 5.1. All variables were normally distributed.

Table 5.1: Mean scores and standard deviations for Number of Memories, Latency and Phenomenological Properties of Attachment and Non-Attachment-related Cued 'Memories of the Future' as a function of attachment (N=61)

	Dismissing		Secure		Preoccupied	
	Men	Women	Men	Women	Men	Women
Latency for attachment	10.38 *4.74*	15.71 *7.97*	12.27 *6.50*	11.11 *6.63*	11.04 *2.08*	9.96 *4.87*
Latency for non-attachment	8.51 *3.62*	11.83 *6.92*	10.93 *4.12*	7.80 *4.80*	9.05 *2.12*	11.77 *6.82*
Total number of Memories for attachment	6.80 *1.22*	7.46 *0.87*	7.55 *0.52*	7.24 *0.83*	7.50 *0.57*	7.88 *0.35*
Total number of Memories for non-attachment	11.90 *1.44*	12.31 *1.18*	12.45 *0.68*	12.53 *0.71*	12.00 *0.81*	12.63 *0.74*
Mean General Rehearsal for Attachment	2.98 *0.88*	3.51 *0.84*	3.26 *0.84*	3.89 *0.80*	3.87 *1.13*	3.38 *0.55*
Mean General Rehearsal for Non-Attachment	2.79 *0.69*	3.08 *0.92*	2.77 *0.86*	3.66 *0.79*	3.22 *0.53*	2.89 *0.73*

Standard deviations are in italics

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Table 5.1 cont.: Mean scores and standard deviations for Phenomenological Properties of Attachment and Non-Attachment-related Cued Memories

of the Future as a function of attachment (N=61)

	Dismissing		Secure		Preoccupied	
	Men	Women	Men	Women	Men	Women
Mean Importance for Attachment	3.24 *0.87*	3.62 *0.84*	3.36 *0.05*	3.96 *0.72*	3.43 *0.87*	4.31 *0.79*
Mean Importance for Non-Attachment	2.47 *1.17*	3.07 *1.00*	2.34 *0.86*	3.36 *0.59*	2.42 *0.43*	3.34 *1.12*
Mean Vividness for Attachment	3.85 *0.96*	3.83 *0.57*	4.03 *0.48*	4.49 *0.65*	4.25 *0.38*	4.39 *0.59*
Mean Vividness for Non-Attachment	3.61 *0.87*	3.54 *0.43*	4.00 *0.86*	4.57 *0.45*	3.95 *0.36*	3.86 *0.79*
Mean Emotional Intensity at Encoding for Attachment	3.58 *1.01*	3.99 *0.61*	3.99 *0.72*	4.03 *0.86*	3.81 *0.84*	4.70 *0.43*
Mean Emotional Intensity	2.97 *0.63*	3.45 *0.59*	2.99 *0.90*	3.43 *0.86*	3.19 *0.58*	3.76 *0.35*

Standard deviations are in italics

Table 5.1:cont. Mean scores and standard deviations for Phenomenological Properties of Attachment and Non-Attachment-related Cued 'Memories

of the Future' as a function of attachment (N=61)

	Dismissing		Secure		Preoccupied	
	Men	Women	Men	Women	Men	Women
Mean Specificty for Attachment	4.56 *1.02*	4.20 *0.97*	4.35 *0.71*	4.46 *0.69*	4.16 *0.51*	4.27 *0.70*
Mean Specificty for Non-Attachment	3.67 *0.61*	3.57 *0.84*	3.87 *0.56*	4.33 *0.81*	4.19 *0.99*	0.47 *0.92*
Mean Emotional Intensity at Recall for Attachment	2.30 *1.30*	3.75 *0.89*	2.32 *0.93*	3.02 *0.75*	3.10 *0.81*	3.63 *0.90*
Mean Emotional Intensity at Recall for Non-Attachment	2.10 *1.38*	2.47 *0.75*	1.76 *0.33*	2.75 *1.05*	2.70 *0.81*	3.19 *0.94*
Mean Self-relevance for Attachment	2.77 *0.55*	3.16 *1.03*	3.02 *0.97*	3.44 *0.72*	3.30 *0.79*	3.61 *0.91*
Mean Self-relevance for Non-Attachment	2.19 *0.67*	3.64 *0.96*	2.23 *0.90*	2.95 *0.72*	2.41 *0.61*	2.99 *0.85*

Standard deviations are in italics

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5.3.1 Relations between A.A.I. Classification and Attachment-Related Future Memories

Relations between A.A.I. classification and individuals' imagined future memories were explored in a series of hierarchical step-wise regression analyses. For each regression, gender was added at the first step, scores on the Beck Depression Inventory and Childhood Trauma Questionnaire were added at the second step, and three-way A.A.I. classification was added at the final step.

The results of these regressions are summarised in Table 5.2. As shown in Table 5.2, A.A.I. classification was an independent predictor of the following properties of the attachment-related future memories: (a) vividness (accounting for 19% of the variance), and (b) self-relevance (accounting for 9% of the variance). Post-hoc one-way ANOVAs showed a main effect of A.A.I. classification on vividness, $F(2, 60) = 6.73$, $p < .001$, $\acute{\eta}^2 = .183$, and self-relevance, $F(2, 60) = 3.30$, $p < .05$, $\acute{\eta}^2 = .100$. Pairwise comparisons showed that dismissing individuals reported future memories to be less vivid than preoccupied individuals, with a marginally significant trend ($p = .07$) for dismissing individuals to report less vivid future memories than those in the secure group. Although dismissing individuals scored lowest and preoccupied individuals highest on self-relevance, there were no significant pairwise comparisons, although the contrast between the dismissing and preoccupied groups approached significance ($p = .072$).

Table 5.2 shows that A.A.I. classification did not predict recall of attachment-related future memories in terms of (a) the total number of memories, (b) the latency of recall, (c) emotional intensity at encoding, or (d) ease of recall.

Table 5.2: Results of Multiple Linear Regression Analyses for Predictors of the Cued Future Attachment-Related Memories (N=63)

	Step 1 ΔR^2	Gender (β)	Step 2 ΔR^2	BDI (β)	CTQ (β)	Step 3 ΔR^2	A.A.I. (β)
Number of memories	.00	.01	.02	-.15	.10	.00	.01
Latency of recall	.00	.05	.00	-.02	.01	.01	.11
Vividness	.01	.09	.03	-.06	.20	.19**	.44**
Intensity of emotion	.04	.20	.01	-.08	-.01	.03	.17
Self-relevance	.01	.11	.00	-.04	.03	.09*	.31*
Ease of formulation	.01	.08	.02	.05	.13	.04	.20

$p < .05$, $** p < .01$.

5.3.2 Relations between A.A.I. Classification Non-Attachment Future Memories

Relations between A.A.I. classification and response to the non-attachment cues for future memories were investigated using step-wise hierarchical regression analyses, with variables entered into the regression equation as described above. The results of these regression analyses are summarised in Table 5.3. As shown in Table 5.3, the only variable predicted by A.A.I. classification was total number of future non-attachment memories. A post-hoc one-way ANOVA showed a main effect of A.A.I. classification, $F(2, 60) = 3.65$, $p < .05$, $\eta^2 = .108$. Pairwise contrasts showed that secure individuals imagined more future non-attachment events than did dismissing individuals, but no other pairwise contrasts were significant.

Table 5.3: Results of Multiple Linear Regression Analyses for Predictors of the Cued Future Non-Attachment Memories (N=63)

	Step 1 ΔR²	Gender (β)	Step 2 ΔR²	BDI (β)	CTQ (β)	Step 3 ΔR²	A.A.I. (β)
Number of memories	.01	.08	.03	-.10	-.10	.08*	.30*
Latency of recall	.00	.05	.02	-.16	.03	.05	.21
Vividness	.00	.02	.01	.03	.08	.03	.18
Intensity of emotion	.09*	.30*	.08*	-.24[a]	.33*	.04[a]	.22[a]
Self-relevance	.00	.06	.08[a]	-.04	.29[a]	.02	.09
Ease of formulation	.01	.09	.02	-.11	.19	.01	.09

[a] $p = .07$, * $p < .05$.

5.3.3 The Influence of A.A.I. Classification on Relation between Recall of Attachment-Related Past Events and Imagined Future Events

A.A.I.-related differences between the characteristics of past versus future attachment-related events were explored in a series of 3 attachment (A.A.I. classification) × 2 memory type (past, future) repeated measures ANOVAs. The relevant descriptive statistics are shown Table 5.4.

Table 5.4: Mean scores and standard deviations for Phenomenological Properties of Past the Future Attachment-related Events as a Function of

Attachment (N=63)	Dismissing		Secure		Preoccupied	
	Men	Women	Men	Women	Men	Women
Mean latency for Past	10.39 *4.74*	15.71 *7.97*	12.28 *6.51*	11.12 *6.64*	11.41 *2.09*	9.96 *4.88*
Mean Latency for Future	11.37 *7.43*	10.39 *6.45*	6.80 *3.24*	7.57 *4.97*	5.73 *3.14*	9.54 *5.16*
Mean Vividness for Past	3.86 *0.97*	3.84 *0.57*	4.03 *0.49*	4.50 *0.66*	4.25 *0.38*	4.39 *0.60*
Mean Vividness for Future	3.46 *1.31*	3.32 *0.87*	4.12 *0.84*	3.80 *0.77*	4.61 *0.51*	4.41 *0.49*
Mean Emotional Intensity For Past	3.59 *1.02*	4.00 *0.61*	4.00 *0.72*	4.03 *0.86*	3.81 *0.84*	4.71 *0.44*
Mean Emotional Intensity for Future	4.20 *0.91*	4.73 *0.74*	4.67 *0.62*	4.74 *0.93*	4.55 *1.10*	5.01 *0.49*
Mean Self-Relevance for Past	2.77 *0.56*	3.17 *1.03*	3.03 *0.98*	3.45 *0.72*	3.31 *0.79*	3.61 *0.91*
Mean-Self-Relevance for Future	3.36 *0.97*	3.89 *0.92*	4.30 *0.82*	4.10 *0.90*	4.14 *0.85*	4.48 *0.69*

Standard deviations are in italics

For latency of recall, there was a main effect of memory type, $F(1, 60) = 16.52$, $p < .001$, but no effect of A.A.I. classification, $F(2, 60) = 1.18$, and no memory type × attachment interaction, $F(2, 60) = 0.49$, n.s. A post-hoc paired t test showed that individuals were slower at reporting future imagined events than recalling memories from the past, $t(64) = 4.56$, $p < .001$.

For vividness, there was a marginally significant main effect of memory type, $F(1, 60) = 2.99$, $p = .089$, a main effect of A.A.I. classification, $F(2, 60) = 9.12$, $p < .001$, and no memory type × attachment interaction, $F(2, 60) = 1.46$, n.s. A post-hoc paired t test showed that individuals rated past memories as more vivid than future memories, $t(64) = 2.55$, $p < .025$.

For emotional intensity at encoding, there was a main effect of memory type, $F(1, 60) = 23.60$, $p < .001$, but no effect of A.A.I. classification, $F(2, 60) = 2.13$, and no memory type × attachment interaction, $F(2, 60) = 0.32$, n.s. A post-hoc paired t test showed that individuals rated future events as being more emotionally intense than past events, $t(64) = 5.66$, $p < .001$.

For self-relevance, there was a main effect of memory type, $F(1, 60) = 48.25$, $p < .001$, a main effect of A.A.I. classification, $F(2, 60) = 3.14$, $p < .05$, and no memory type × attachment interaction, $F(2, 60) = 0.46$, n.s. A post-hoc paired t test showed that individuals rated future memories as more self-relevant than past memories, $t(64) = 7.82$, $p < .001$.

5.3.4 The Influence of A.A.I. Classification on Relation between Recall of Non-Attachment- Past Events and Imagined Future Events

A.A.I.-related differences between the characteristics of past versus future non-attachment events were investigated as above using repeated measures ANOVA.

For latency of recall, there was no main effect of memory type, $F(1, 60) = 0.01$, n.s., or attachment, $F(2, 60) = 1.35$, n.s., and no memory type × attachment interaction, $F(2, 60) = 1.67$, n.s.

For vividness, there was no main effect of memory type, $F(1, 60) = 0.26$, n.s., but there was a main effect of attachment, $F(2, 60) = 3.35$, $p < .05$, and there was a significant memory type × attachment interaction, $F(2, 60) = 3.60$, $p < .05$. Figure 5.3 shows the interaction, which was explored further using post-hoc paired t tests comparing vividness ratings for the future versus past non-attachment memories for the three separate A.A.I. groups. Dismissing individuals did not differ in their vividness ratings of future versus past memories, $t(22) = 0.31$, n.s., $d = 0.07$, and nor did individuals in the preoccupied group, $t(11) = 1.01$, n.s., $d = 0.43$. In contrast, secure individuals rated past memories as more vivid than future events, $t(27) = 2.63$, $p < .01$, $d = 0.6$.

Figure 5.1. Memory Type (past versus future) × Attachment Interaction for Vividness Ratings

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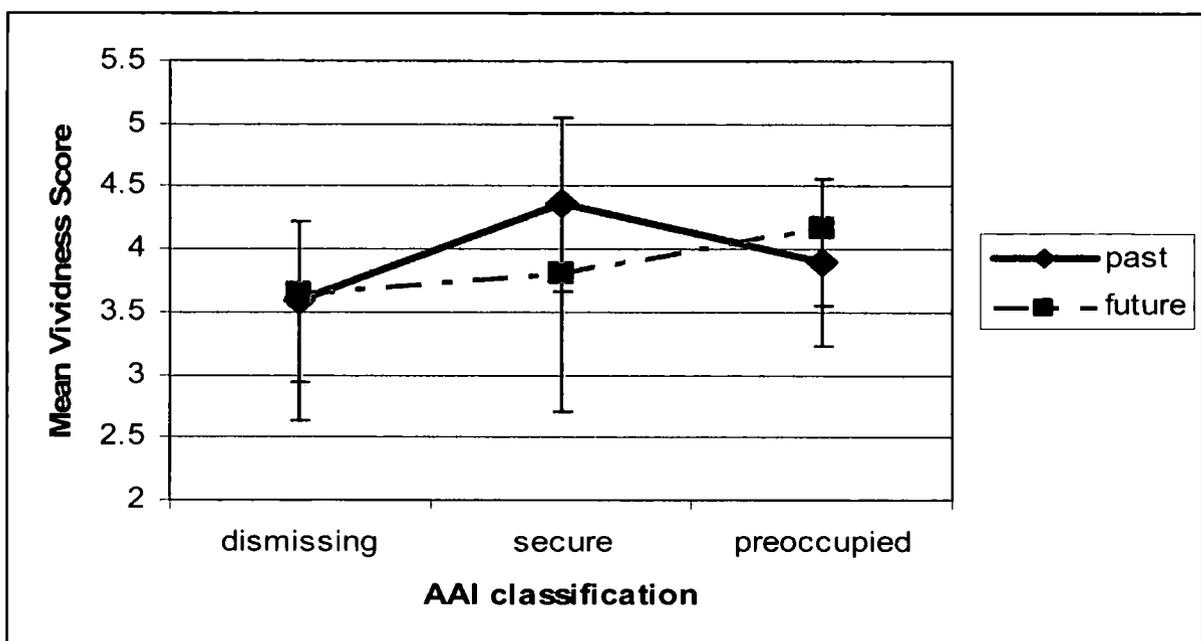
For emotional intensity at encoding, there was a main effect of memory type, $F(1, 60) = 50.66$, $p < .001$, but no effect of attachment, $F(2, 60) = 2.28$, n.s., and no memory type $\times$ attachment interaction, $F(2, 60) = 0.37$, n.s. A post-hoc paired t test showed that future events were rated as more intense than past events, $t(64) = 7.44$, $p < .001$.

For self-relevance, there was a main effect of memory type, $F(1, 60) = 93.94$, $p < .001$, but no effect of attachment, $F(2, 60) = 0.77$, n.s., and no memory type $\times$ attachment interaction, $F(2, 60) = 0.20$, n.s. A post-hoc paired t test showed that future events were rated as more self-relevant than past events, $t(64) = 10.77$, $p < .001$.

5.3.5 Relations between Ratings of Past and Future Events

Relations between variables relating to recall of actual autobiographical memories and imagined future events were investigated for secure and insecure (pooled dismissing and preoccupied) groups. Table 5.5. indicates the correlation matrix of attachment-related cued memories for insecure individuals. As shown in Table 5.5., all of the bivariate correlations between past and future events, including the latency of recall, were positively correlated in insecure group individuals. Table 5.6 shows the correlation matrix for these relations in the insecure group individuals. As shown in Table 5.6, only ratings of self-relevance and retrieval latency between the past and future events were positively correlated in secure individuals.

Table 5.5 Correlation Matrix of the Mean Phenomenological Characteristics of Attachment-cued Memories for the Past and 'Memories' of the Future for the Insecure Attachment Group

	Mean Latency future	Mean Vividness future	Mean Intensity of Emotion future	Mean self-relevance future
Mean Latency past	**0.63**** **p<0.001**	-0.30 n.s.	0.13 n.s.	-0.07 n.s.
Mean vividness past	-0.22 n.s.	**0.37*** **p<0.05**	0.26 n.s.	0.04 n.s.
Mean intensity of emotion at encoding	-0.19 n.s.	0.31 n.s.	**0.55*** **p<0.05**	0.26 n.s.
Mean intensity of emotion at recall	-0.11 n.s.	0.23 n.s.	**0.36*** **p<0.05**	0.21 n.s.
Mean self relevance past	-0.32 n.s.	0.22 n.s.	0.28 n.s.	**0.54*** **p<0.05**

Table 5.6 Correlation Matrix of the Mean Phenomenological Characteristics of Attachment-cued Memories for the Past and 'Memories' of the Future for the Secure Attachment Group

	Mean Latency future	Mean Vividness future	Mean Intensity of Emotion future	Mean self-relevance future
Mean Latency past	.54** p<0.005	-0.23 n.s.	-0.01 n.s.	-0.16 n.s.
Mean vividness past	-0.18 n.s.	-0.11 n.s.	0.14 n.s.	-0.09 n.s.
Mean intensity of emotion at encoding	0.27 n.s.	-0.30 n.s.	0.15 n.s.	0.01 n.s.
Mean intensity of emotion at recall	-0.40* p<0.05	-0.09 n.s.	-0.05 n.s.	0.10 n.s.
Mean self relevance past	-0.03 n.s.	-0.18 n.s.	0.41* p<0.05	0.62** p<0.001

5.4 Discussion

The results of Study Three showed that A.A.I. classification independently predicted vividness and self-relevance ratings of individuals' attachment-related future memories. Dismissing individuals' attachment-related future memories were less vivid than those of preoccupied and secure individuals. A.A.I. classification was also an independent predictor of scores for the self-relevance of attachment-related future memories, but although preoccupied individuals scored highest and dismissing individuals lowest on this factor, post-hoc tests indicated that there were no significant pairwise comparisons. A.A.I. classification was not related to basic ability to conjecture future events relating to attachment themes in terms of overall number of events produced, the latency with which individuals responded to the cue words, or their self-reported scores for how easy it was to formulate imagined events.

For non-attachment future events, A.A.I. classification was unrelated to latency of recall and all of the reported characteristics of the memory, but A.A.I. independently predicted the total number of non-attachment future events, with post-hoc pairwise comparisons showing the secure group individuals imagined more future non-attachment events than did dismissing individuals.

Comparing future attachment-related imagined events with actual past events, for all variables, memory type affected recall regardless of A.A.I. classification. Compared with future imagined attachment-related events, past events were recalled more quickly, were more vivid and emotionally intense,

but future attachment-related events were judged to be more self-relevant than those in the past.

For non-attachment events, future events were rated as more emotionally intense and self-relevant than past events. There was an interaction between memory type and A.A.I. classification for vividness of past versus future events. Individuals in both of the insecure groups did not differ in their vividness ratings of actual versus imagined events, but secure individuals rated past events as more vivid than imagined future events. The latter finding thus replicated a recent study (D'Argembeau & van der Linden, 2004) in which past events were rated to be more vivid and detailed than future imaginings. Interestingly, in both the secure and insecure groups there was no difference in how quickly actual non-attachment past events and future imagined events were generated.

Finally, the individual phenomenological properties of past versus future attachment-related events were positively correlated only in insecure group individuals.

The first aim of Study Three was to investigate whether possible post-emptive defences of dismissing individuals could be evidenced when the material related to imagined future events rather than childhood memories. Attachment theory posits that internal working models, i.e., past dyadic interactions, influence how present and past significant relationships are interpreted, and autobiographical memory theory holds that future events are pre-experienced similarly to how past events are re-experienced. However, future imagined events have not been encoded, and it can therefore be assumed that pre-emptive defences will not be employed regarding the future.

The presence of a post-emptive defensive strategy was thus suggested by the finding that dismissing participants did not differ in the number of future events generated, nor in the latency of recall nor in the ease with which memories of the future were generated. It should be noted in fact that the dismissing individuals, unlike the other participants, tended to indicate that future events are less vivid and self-relevant than past events and that this effect was found for attachment-related cues only, in contrast to their ratings of past childhood experiences.

A second more general aim of Study Three was to explore attachment-related individual differences in remembering the past and imagining the future. Attachment theory holds that secure individuals' internal working models may be more complex and flexible, as discussed in Chapter One. The correlations found between the insecure groups' phenomenological characteristics of memories of the past and future may indicate that they unselectively project the past into the future, and that this invariance allows individuals to achieve a sense of felt security or to maintain self-coherence. In contrast, only retrieval latency and self-relevance correlated in the secure group. The association between memories and future imaginings of the secure group, on the contrary, may reflect their valuing of attachment-related issues in general as posited by attachment theory. These findings may have implications for the construct of internal working model, supporting Main's (2003) view of internal working models as constraints operating in the insecure groups only.[15]

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[15] As Main indicated, this view was first suggested by the psychoanalyst Fairbairn (1952) who posited that only depriving relationships with the caregiver were incorporated or internalised.

It should be noted that there is a theoretical and empirical convergence between the theory of internal working models and the current constructive theories of episodic and autobiographical memory. As discussed in Chapter Two, these models point out the adaptive evolutionary value of drawing upon and not merely replicating past experience to create mental representations of future social interactions (Brüne & Brüne-Cohrs, 2007). D'Argembeau and van der Linden (2007) have recently argued that mental time travel may be particularly relevant to emotion regulation being linked to individuals' beliefs and motivations. In particular, these authors describe the function of mental time travel as specifying "which situations should be approached or avoided" by "representing goal-related information" (p.320). This function is equivalent to that attributed to internal working models by attachment theory as discussed in Chapter 1.

Further implications of the results of Chapter Three for the conclusions of previous research regarding the types of defence employed by the different attachment groups are discussed in detail in the final chapter.

Chapter 6: General Discussion

As discussed in Chapter Two, Bowlby (1980) drew upon Tulving's (1972) distinction between episodic and semantic memory systems to conceptualise internal working models. Bowlby (1980) hypothesised that representations of self and attachment figures are stored in both memory systems. Memories of behaviour and of verbal interactions are stored in the episodic memory system, while generalisations of attachment experiences (internal working models proper) are stored in the semantic memory system. Bowlby (1973) linked unfavourable interactions between child and caregiver or traumatic experiences to the creation of multiple models of same aspect of reality, or to a lack of access to relevant information. Main and Goldwyn (1998) operationalised the semantic-episodic discrepancy in their conception of insecure individuals. The dismissing stance, according to the authors, thus has a tendency to depict the past positively on a semantic level, without being able to access relevant episodic memories, and the preoccupied speaker's may be conceived as becoming absorbed in episodic recall, resulting in the past overwhelming the present context.

Main, Kaplan and Cassidy (1985) revisited the concept of internal working models, defining them as "a set of conscious and/or unconscious rules for the organization of information relevant to attachment and for obtaining or limiting access to that information" (pp. 66–67). This definition focused on the IWMs' role in the organisation and regulation of cognitive processing rather than on their representational structure. This conception is highly compatible

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with Conway and Pleydell (2000) hypothesis that IWMs influence memory retrieval and give rise to the characteristic phenomenological patterns of autobiographical recollection. At the same time, considering the reciprocal nature of the constraints exercised by autobiographical memories and current goals when these are incompatible, characteristic dysfluencies in autobiographical recall can be evidenced.

To address how the mode of assessing adult attachment influences the pattern of any observed security-related differences in autobiographical recall – the two studies reported in this thesis investigated how self-report or narrative-based assessments of adult attachment related to autobiographical recall.

The results of Study One, which investigated how a self-report measure of adult attachment style related to (a) the number of early memories recalled, (b) the valence of the early memories, and (c) the reported phenomenological characteristics of the early memories, suggested that attachment style had little impact on freely recalled material from childhood. Attachment style was related only to individuals' tendency to include negatively valenced events in their early memories. When compared with the secure and preoccupied groups, dismissing individuals were less likely to include at least one negative memory in freely recalled events from childhood. For the proportion of negative memories recalled, attachment style interacted with gender. Secure women recalled proportionately more negative events than did secure men, whereas there was a marginally significant trend in the opposite direction in the dismissing group. It should however be considered

that this marginally significant difference could be due to unequal sample sizes of males and females.

In terms of ratings of the phenomenological properties of the earliest memories (e.g., frequency of rehearsal, vividness, emotional intensity), individuals did not differ as a function of attachment style.

The defensive processes of dismissing or avoidant states of mind as postulated by attachment theory have been attributed to a lack of attention and thus failed encoding of attachment-related events, also defined as pre-emptive defence or inhibitory processes operating during the retrieval (Fraley et al., 2000; Fraley & Brumbaugh, 2007). This distinction is also inherent to Bowlby's (1980) definitions of the processes of deactivation and the formation of segregated systems. The results of Study One appeared to be in line with the conclusion that dismissing or avoidant style is characterised by the adoption of pre-emptive defences, whereby negative emotional material is initially not encoded. While the dismissing individuals were less likely to recall negative material (suggesting that it was defended against at the encoding stage), the negative memories that they did recall were not rated any differently than those recalled by individuals in the secure and preoccupied groups. However, in order to be confident in concluding that dismissing individuals adopt a pre-emptive strategy, and to answer the first question posed in this thesis, Study Two addressed whether these findings could be replicated when adult attachment was assessed using the A.A.I..

Using this narrative based assessment of attachment state of mind, rather than relying on self-report measures in which individuals make a

conscious decision to endorse one particular attachment style, may mean that security-related differences in the process and properties of recall become more evident. Study Two also assessed individuals' recall of autobiographical material in response to specific attachment-related and non-related cues as well as in their free recall of their earliest memory. In addition, to address more specifically whether attachment influenced individuals post-emptively at the moment of recall, participants were asked to rate memories for emotional intensity at recall, and in terms of how much the memory said about them as a person. Because memory was assessed individually for each participant, it was also possible in Study Two to gather data on latency of recall in response to the different memory tasks.

Study Two showed few robust differences in the number of memories recalled or latency of recall as a function of A.A.I. classification, regardless of the nature of the task (earliest memory versus cued recall) or type of cue (attachment-related, negative attachment-related, non-attachment). In contrast, several attachment-related differences emerged on individuals' ratings of the phenomenological properties of the memories recalled in relation to the cue words. For the attachment-related cues, A.A.I. classification independently predicted scores for the vividness and emotional intensity of the memory both at encoding and recall. Dismissing individuals rated attachment-related memories as less vivid than did individuals in the secure and preoccupied groups, as well as rating them as less intense at the time of recall in comparison with preoccupied individuals. The results of Study Two showed that these effects were not specific to attachment memories related to negatively valenced events, but generalised to attachment memories of any

valence. A.A.I. classification was also related to the vividness and specificity of recall of events in response to the non-attachment cues, with dismissing individuals again reporting non-attachment memories as less vivid than their counterparts in the secure and preoccupied groups, and less specific than individuals in the preoccupied group. This suggests that attachment state of mind might have a more pervasive influence on recall of material from childhood, rather than impacting specifically on attachment-related memories. Bucci's (1997) Multiple Code Theory also suggests that the lack of vividness and specificity when recalling memories indicates a disconnection from the underlying emotional experience associated with the recall of the event. Similarly Conway et al., (2004) refer to a retrieval which is experience-distant.

The results of Study Two thus provided some answers to the second question posed at the outset of this thesis: to what extent does the internal working model relate to assessments of individuals' more general autobiographical recall? The final contribution of Study Two was to investigate how memories recalled in response to the attachment-related versus non-attachment memories varied as a function of A.A.I. classification, further addressing the second question of this thesis. Interestingly, there was a main effect of memory type all of the measures assessing the reported characteristics of the memories. Compared with non-attachment memories, attachment-related memories were rated as more frequently rehearsed, more important, more vivid, more emotionally intense both at encoding and at recall, more specific, and more self-relevant regardless of individuals' A.A.I. classification. In addition to these main effects of memory type, there were two significant attachment × memory type interactions. The first was for

vividness of recall, and the second was for specificity. There was a suggestion of preoccupied individuals being more likely to rate attachment memories as more vivid than non-attachment memories, while the secure and dismissing groups showed no such difference. For specificity, dismissing individuals rated attachment-related memories as more specific than non-attachment memories, while individuals in the secure and preoccupied groups did not differ in their specificity ratings of the two types of memory.

Study Three addressed the final two questions raised at the beginning of this thesis: Do individual differences in adult attachment impact exclusively on recall of emotional material or formative early experiences from one's own life, or is their influence more pervasive? Is there evidence to suggest that internal working models play a role in our ability to conjecture about the future as well as out ability to recall the past? In Study Three, participants were asked to recount events that they imagined might occur in their future in response to attachment-related and non-attachment cue words. Differences between the different A.A.I. groups in future 'memories' and relations between recall of actual past events and imagined future events were then explored.

In recounting future events in response to the attachment-related cues, A.A.I. classification independently predicted reported vividness and self-relevance. Dismissing individuals reported future attachment-related events to be less vivid than those in the secure and preoccupied groups, and there was a trend for dismissing individuals to report future attachment-related memories as less self-relevant than those in the preoccupied group. However, no differences were seen between the attachment groups' recounting future

attachment-related memories with respect to the total number of events generated, latency of response and reported ease of recall. A.A.I. classification did not predict any of the phenomenological properties or latency of recall of the non-attachment future events, although it did predict overall number of events recounted. Secure group individuals generated more non-attachment future events than their counterparts in the dismissing group.

Comparing recall of the past and future events in terms of latency and the reported phenomenological properties, for attachment-related memories, there were significant effects of memory type for all variables. Individuals were slower at recounting future attachment-related events than recalling actual attachment-related events from the past, and rated past events as more vivid and emotionally intense. In contrast, it was future attachment-related events that were rated as being more self-relevant than actual memories from the past. For non-attachment future and past events, there was no effect of memory type on latency of recall or vividness, but future non-attachment memories were reported to be more emotionally intense and more self-relevant across all attachment groups. Memory type interacted with A.A.I. classification for vividness; individuals in the dismissing and preoccupied groups did not differ in their ratings of past versus future non-attachment events, whereas secure individuals rated past memories as more vivid that imagined events in the future.

The final finding of Study Three was that there was much greater concordance between ratings of past and future events on the specific phenomenological properties of recall for insecure group individuals than for individuals with a secure attachment state of mind. This finding speaks to the

final question posed at the outset of the thesis in terms of how flexibly the internal working models associated with the different A.A.I. classifications are used in terms of providing templates for events conjectured to occur in the future.

6.1Implications of the findings reported here for previous research on attachment-related differences in autobiographical recall.

The main aim of Study Two was to establish whether observed security-related differences in autobiographical recall are best characterised in terms of pre-emptive or post-emptive defence strategies. As previously described, the results of Fraley and colleagues (Fraley & Brumbaugh, 2007; Fraley et al., 2000) as well as those of Study One suggested that the deficits in recall observed in dismissing and avoidant individuals indicated that they adopted a pre-emptive strategy. The lack of relation between A.A.I. classification and ratings of the phenomenological properties of the earliest memories reported here (Study One) is also consistent with the conclusion that adult attachment impacts on the encoding of autobiographical memories rather than processing involved in their recall. However, the findings from the cued-recall procedure in Studies Two and Three present problems for this conclusion since they indicate that dismissing individuals do not differ from their secure and preoccupied counterparts with regard to the number of memories recalled or the latency of recall, but rather tend to minimise the importance of the attachment-related memories once recalled. Dismissing individuals' ratings of their attachment-related memories as less vivid, and in

particular the fact that they portrayed these memories as less emotionally intense during recall, suggest they are adopting a post-emptive defence strategy.

In Study Three, where participants had to recount events that might occur in the future in response to attachment-related cues, and thus could not adopt a pre-emptive defence given that these were imagined events that had not been encoded, dismissing individuals did not differ from secure and preoccupied individuals in terms of number of attachment-related future events recounted, latency of response or reported ease with which events were generated (in support of their adoption of a pre-emptive defence). And yet they rated future attachment events as less vivid and self-relevant. Although the effect for self-relevance was only marginally significant, it is notable that dismissing individuals' tendency to regard future attachment memories as saying little about themselves flies in the face of the tendency observed in the whole group to rate future events as more self-relevant that those that had actually occurred in the past. These latter points are therefore more suggestive of post-emptive defence in dismissing individuals.

At first sight, the cued recall findings of Studies Two and Three therefore appear at odds with those of other studies concluding that dismissing individuals adopt a pre-emptive defence strategy with regard to negatively valenced or attachment-related material. However, there are three main ways in which the findings may be reconciled. First, it may be that it is impossible to compare autobiographical memory effects related to the dimensional measure of attachment avoidance used by Fraley and colleagues with those relating to the categorical measure of dismissing style or state of mind.

Second, a pre-emptive strategy might only be obvious in individuals who consciously endorse dismissing tendencies on self-report measures of attachment style (adopted in previous research and in Study One). Thus, the discrepancy in findings may simply result from the different ways in which adult attachment was assessed. There is, however, a third, more intriguing explanation for the different pattern of findings. Fraley and colleagues arrived at the conclusion that avoidant individuals adopt a pre-emptive defence strategy on the basis of the findings of two studies, both of which assessed participants' recall for material from an interview in which a woman described her close relationships and experiences of loss. In contrast, in Study Two, participants were asked to recall experiences from their own childhoods that were appropriate to attachment-related cues, and in Study Three they had to imagine attachment events that might happen to themselves in the future. It is possible that dismissing individuals adopt different defence strategies depending on (a) whether the material focuses on their own attachment experiences, and (b) the lifetime period in which it was encoded.

When cued to recall their own attachment experiences from childhood, dismissing individuals may adopt a post-emptive defence strategy whereby access to relevant memories is just as easy as it is for secure and preoccupied individuals, but the dismissing state of mind results in post-emptive minimising of the importance of the material. In contrast, when exposed later in life to material relating to the emotional attachment experiences of other people, dismissing individuals adopt a pre-emptive strategy that serves to minimise their attentional focus. This proposed employment of different types of defence strategy for personal versus others' attachment and emotional

experiences is consistent with the somewhat surprising findings of Study Two that highlight how dismissing individuals rate attachment-related memories as more specific, important and emotionally intense at the time of encoding than non-attachment memories. Dismissing individuals also rated attachment-related memories as saying more about themselves than non-attachment memories. Thus, early attachment experiences appear to be just as accessible and powerful for dismissing individuals as they are for secure and preoccupied individuals. It may be the case that adult attachment impacts on autobiographical recall of attachment experiences not at the level of how the experiences themselves are encoded, but in terms of how these experiences are used to inform one's strategy for encoding new material relating to negative emotions or attachment themes. By minimising the importance of attachment-related memories, despite the fact that they are rated as more important than non-attachment memories, dismissing individuals minimise attention to these themes when they encounter them again. In contrast, because secure and preoccupied individuals value or cling to their attachment memories, they do not defend against emotional and attachment material in a pre-emptive manner in the future.

The finding in Study Three showing that dismissing individuals also downplay the vividness and self-relevance of attachment events that might happen to themselves in the future suggests that post-emptive defences might come into play more when the attachment material is focused on the self, rather than dealing with attachment experiences of other people (as was the case in the studies by Fraley and colleagues). Unlike the recall of events from their own childhoods (where effects were observed for the dismissing group in

ratings of both attachment and non-attachment memories), the effects of dismissing style on imagined future events were specific to their ratings of attachment-related material.

The potential complexities in relation to the types of defence adopted by dismissing individuals highlight the fact that it may be dangerous to assume that pre-emptive and post-emptive defences are mutually exclusive strategies, and suggest that both types of defence may come into play. It may therefore be fruitful to view the employment of pre-emptive and post-emptive defences in terms of a filter or attenuation model, rather than functioning in an all or nothing fashion. This interpretation would also be more compatible with the constructivist approach to memory discussed in Chapter One, which proposes that encoding and retrieval are interrelated processes.

Further, the results of the studies reported in this thesis suggest that how one defends against emotionally negative or attachment-related material depends upon whether the material is focused on oneself and pertains to early childhood experiences or imagined events that may occur in the future. Although the performance of dismissing individuals on recall and recounting of attachment-related material can be framed in terms of the adoption of post-emptive defences, it is important to bear in mind that insecure individuals in general were found to show greater concordance than secure individuals in their rating of future events and past experiences. This suggests that, despite any post-emptive strategy, dismissing individuals still have a tendency to predict their future on the basis of their past.

The results of the studies reported here also speak to the issue of the discriminant validity of the A.A.I.. As discussed in Chapter Four, two

influential studies (Bakermans-Kranenburg & van IJzendoorn, 1993; Sagi et al., 1994) concluded that the A.A.I. had good discriminant validity on the basis that A.A.I. classification was unrelated to individuals' recall for non-autobiographical material. The assessment of attachment-related memories reported in Study Two provides further support of the validity of the A.A.I. in this respect.

However, it should be considered that the previous studies assessed the phenomenological properties of non-attachment memories, focusing merely on number of memories recalled, age of encoding or latency of recall. In contrast, the results of Study Two showed that A.A.I. classification was related to certain reported properties of non-attachment memories (vividness and specificity), suggesting that the discriminant validity of the A.A.I. may be less clear cut if one assesses the process of recall rather than merely the quantity or speed of recall. Future research should therefore attempt to explore this possibility further.

6.2 Shortcomings and Future Directions

Before discussing how the findings reported here may be used to inform future research, it is important to outline a number of shortcomings of the studies reported here. First, it may be that the null findings arose not because adult attachment is unrelated to the various aspects of autobiographical recall considered here, but because the studies had insufficient power to detect significant effects. That said, the numbers of participants included in the studies reported in this thesis were similar or greater than those involved in previous research in this area employing both

self-report (e.g., Edelstein, 2007; Fraley et al., 2000) and A.A.I. (Bakermans-Kranenburg & van IJzendoorn, 1993; Sagi et al., 1994) measures of attachment. Moreover, in the study involving the A.A.I., the groups of participants in the secure, dismissing and preoccupied groups were reasonably well matched with respect to size, with no great preponderance of secure individuals. However, it is important to replicate these results in larger samples, and using dimensional measures of attachment style, before firm conclusions can be drawn regarding the types of defence that might best characterise dismissing individuals.

Another major shortcoming of the studies reported is that it was assumed that the attachment-related cues actually evoked attachment-related memories of the past or future. Further studies should examine the content of memories recalled to confirm this hypothesis. In fact, it may be hypothesised that if the dismissing state of mind operates with pre-emptive defences, negative or attachment-related cue words may evoke relatively neutral memories.

Further, the sample size of this study did not allow distinctions among the different sub-categories of A.A.I. classifications to be drawn. For instance no distinction was made between the prototypic DS1 category, which is characterised by insistence on lack of memory and the DS2 category. The latter individuals may recall memories but actively devalue their importance or effects.

If one takes the results to indicate that insecure individuals, and perhaps dismissing individuals in particular, adopt complex strategies to defend against attachment material, these findings suggest interesting avenues

for future research. For example, while memory research has a long tradition of employing neuropsychological data in informing and testing theoretical models (see Chapter One), attachment researchers have only just begun to employ sophisticated techniques such as neuroimaging to test predictions about relations between adult attachment and information-processing. A recent study has used the Adult Attachment Projective (George & West, 2001) to investigate how individual differences in attachment representation relate to brain functioning using fMRI. Bucheim et al. (2006) concluded that the Adult Attachment Projective (AAP) was a feasible measure to be used in a neuroimaging environment, and reported that only individuals classified as unresolved on the basis of their responses to the AAP showed increased activation in the amygdala and hippocampus regions. Bucheim et al. interpreted this finding as evidence for unresolved attachment status being linked with greater emotional dysregulation.

However, the AAP remains to be fully validated as an assessment of attachment state of mind, and conducting lengthy A.A.I.s while participants are being scanned would not appear to be an appropriate way for investigating in greater depth the neural correlates of adult attachment. A better approach may be to first screen participants using the A.A.I. and then investigate attachment-related individual differences in brain activation while they are conducting cued autobiographical recall tasks such as those used in Studies Two and Three. Such data may prove to be particularly enlightening with regard to the issue of whether dismissing individuals adopt pre-emptive or post-emptive defences depending on the nature of the material (negatively

valenced, attachment-related, etc.) and whether the memories relate to their own attachment experiences.

By borrowing techniques from cognitive psychology and cognitive neuroscience, and being willing to engage in more formal tests of whether internal working models of attachment relationships do indeed impact on autobiographical recall and one's ability to engage in mental time travel, representational attachment research may be better able to avoid continued criticism on the basis that its central theoretical component – the internal working model – is a catchall that is too vague to provide testable hypotheses (Dunn, 1993; Hinde, 1988; Thompson, 1998).

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Appendix 1 Study 1

Subject Information Sheet

Early Memory and Relationships Study

❖ What is the purpose of this study?

The aim of this study is to further our understanding of memory for personally experienced events, and in particular, to investigate how childhood relationships influence memory.

❖ What happens if I agree to take part?

You will be asked to fill in 2 questionnaires at the end of the lecture and to recall memories from childhood

❖ What are the benefits participants can expect?

We believe that you will gain some insight into how your memory works and your childhood experiences.

❖ Are there any discomforts?

We do not think you will suffer discomfort by taking part in the study.

Confidentiality

All your answers are confidential, and anonymous, we do not in fact ask you to indicate your name. All names and place-names will be replaced by a code number. The material will not be used or made available for any purpose other than the research project.

You are under no obligation to participate in this study. Should you decide to take part you will be free to withdraw from the study at any time, without a reason and without consequences. Participation or withdrawal from the study will not affect your position in the University in any way.

❖ Will I receive any compensation?

No.

❖ Who organised this study?

The study is being organised by Angela Tagini at the Department of Psychology, University of Durham, under the supervision of Dr. E. Meins and Professor M. A. Conway. The study is funded by the same department.

If you have any questions or concerns regarding this study, please contact Angela:

Tel. 0191.3343249 ;   **e-mail: <u>angela.tagini@durham.ac.uk</u>**

<u>**CONSENT FORM**</u>

Early Memories Study

Please cross out as necessary

Have you read the Subject Information Sheet?   YES
/ NO

Have you had an opportunity to ask questions and
discuss the study?   YES
/ NO

Have you received satisfactory answers to all of your questions?   YES
/ NO

Have you received enough information about the study?   YES
/ NO

Who   have   you   spoken   to?   Dr/Mr/Mrs/Ms/Prof.
....

Do you understand that you are free to withdraw from the study:

    * at any time and
    * without having to give a reason for withdrawing and
    * without affecting your position in the University?
YES / NO

Signed   ....……….................   **Date**
....

(NAME   IN   BLOCK   LETTERS)
....……….........................

Approved by Durham University's Ethics Advisory Committee

Appendix 3 Study 1

INSTRUCTIONS FOR QUESTIONNAIRE EARLY MEMORY QUESTIONNAIRE

D= ☐ your age in months, when the remembered event occurred

- **P or O PUT A CIRCLE ROUND ONE OF THESE, EITHER P OR O TO INDICATE FROM WHICH PERSPECTIVE YOU REMEMBER THE EVENT.**

  P= PARTICIPANT If you remember the event as if you were looking out of your own eyes, from the perspective of a participant. You choose "P" for participant's perspective .

  O= OBSERVER If you can see yourself in the memory, you are looking at the memory from the perspective of an observer. You choose "O" for an observer's perspective.

- **M or F PUT A CIRCLE ROUND ONE OF THESE, EITHER M OR F TO INDICATE HOW COMPREHENSIVE YOUR MEMORY IS.**

  M= MEMORY If your remember an event that happened at a particular time and in a certain place
  (e.g. being stung by a bee while playing in your garden).

  F= FRAGMENT If you only remember a moment, without any context. It could be just a single image, a feeling, a sound etc. (e.g., you only remember the pain you felt when you were stung).

- **ALL OTHER RATINGS ARE ON 5-POINT SCALES. WRITE ONE NUMBER IN THE BOXES PROVIDED**

  REH= Rate on the 5-point scale how often you **have thought and/or talked** about the memory before: REH=   1   2   3   4   5

  L_____|_____|_____|_____|_____J

  Never   Most frequently
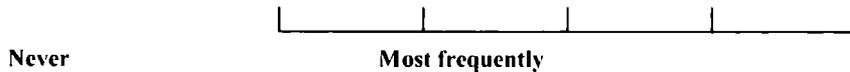
  IMP= Rate on the 5-point scale how personally important the recalled experience is to you:
  IMP=   1   2   3   4   5

  L_____|_____|_____|_____|_____J

  Not important   Most important
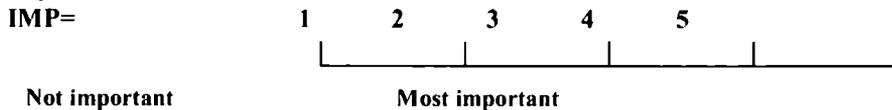
  CLEAR= Rate on the 5-point scale how detailed and clear your memory is:
  Clear=   1   2   3   4   5
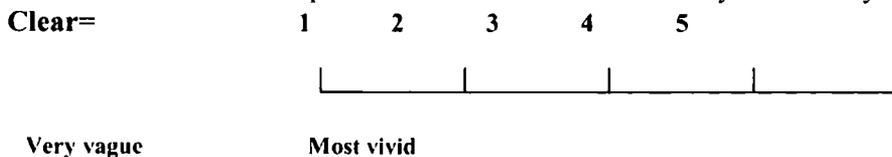
  L_____|_____|_____|_____|_____J

  Very vague   Most vivid

EMO= Rate on the 5-point scale the degree of emotional intensity of the experience:

Emo=

| 1 | 2 | 3 | 4 | 5 |

└────────┴────────┴────────┴────────┴────────┘

No emotion   Most intense

NEGPOS=Rate on the 5-point scale how negative or positive the experience was:

NegPos=

| 1 | 2 | 3 | 4 | 5 |

└────────┴────────┴────────┴────────┘

Very negative   **Very positive**

SOURCE=Rate on the 5-point scale about the source of your memory:

Source=

| 1 | 2 | 3 | 4 | 5 |

└────────┴────────┴────────┴────────┘

Only know about   **Remember it completely**

it from others   **on your own**

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Memory Description:

D= [ ] P or **O**; **M** or **F**; Reh= Im[ ] Clear=[ ] o= NegP[ ] Source[ ] [ ]

Memory Description:

D= [ ] P or **O**; **M** or **F**; Reh= Im[ ] Clear=[ ] o= NegP[ ] Source[ ] [ ]

Memory Description:

D= [ ] P or **O**; **M** or **F**; Reh= Im[ ] Clear=[ ] o= NegP[ ] Source[ ] [ ]

Memory Description:

D= [ ] P or **O**; **M** or **F**; Reh= Im[ ] Clear=[ ] o= NegP[ ] Source[ ] [ ]

Appendix 5 Study 1

The Hazan and Shaver (1990) Adult Attachment Questionnaire (AAQ)

These questions are concerned with your experiences in relationships. Take a moment to think about these experiences and answer the following questions with them in mind.

Read each of the three self-descriptions below (A, B, and C) and then place a checkmark next to the single alternative that best describes how you feel in romantic relationships or is nearest to the way you feel

_____A. I am somewhat uncomfortable being close to others; I find it difficult to trust them completely, difficult to allow myself to depend on them. I am nervous when anyone gets too close, and often, others want me to be more intimate than I feel comfortable being.

_____B. I find it relatively easy to get close to others and am comfortable depending on them and having them depend on me. I don't worry about being abandoned or about someone getting too close to me.

_____C. I find that others are reluctant to get as close as I would like. I often worry that my partner doesn't really love me or won't want to stay with me. I want to get very close to my partner, and this sometimes scares people away. Demographic information

Appendix 6 Study 1

Demographic Information

1. Your date of birth: _____

2. Gender: male_____   female_____

3. Your birth order (only-child, first-born, second-born, etc.): _____

4. Did you attend preschool?   Yes_____   No_____

If yes, at what age? Years _____   months _____

5. Mother's education: secondary school _____   college _____

university degree _____   other (please specify) _____

Appendix 7 Study 2 Invitation to participate in the study

You are invited to participate in a study on **Memory and Relationships**

organised by Angela Tagini

Department of Psychology, University of Durham.

The study will take place at the Psychology Department
(5min.walk from your College)

You will receive £5 for each session.

Please read enclosed information sheet for details.

Please contact Angela if you are considering to take part or have further questions:

e-mail: angela.tagini@durham.ac.uk

Tel. 0191-3343249 or leave a message on the answering machine 07890-376050

If you have decided to take part, please indicate the day of the week and time that suit
you best
(remember that it should not take more than 90 minutes)

Subject Information Sheet

Memory and Relationships Study

❖ **What is the purpose of this study?**

The aim of this study is to further our understanding of memory for personally experienced events, and in particular, to investigate how childhood relationships influence memory.

❖ **What happens if I agree to take part?**

We will arrange a first meeting. Every session takes about 1 hour and 30 minutes and will be audio-taped.

During the first session you will be asked to talk about your childhood and to fill out a questionnaire about your memories. For most students the study will end here, unless you wish to meet the interviewer to receive feedback on the results.

On the basis of the first results, some students will be selected to participate in the second part of the study. If you have been chosen, you will be asked to have 2 further sessions with the interviewer, which will take place later in time (depending on university vacations). During these sessions, you will be asked to recall memories and to fill out several questionnaires on your childhood and on the kind of person you are.

❖ **What are the benefits participants can expect?**

We believe that you will gain some insight into how your memory works and your childhood experiences. If you wish, once the study has been completed you can receive personal feedback on the results.

❖ **Are there any discomforts?**

We do not think you will suffer discomfort by taking part in the study. Should you feel any distress please inform the interviewer.

Confidentiality

All your answers are confidential. Only the interviewer and her supervisors will have access to the audio-tapes, transcripts and questionnaires, and these will be locked in a cabinet at the Psychology Department of the University. All names and place-names will be replaced by a code number. The material will not be used or made available for any purpose other than the research project.

You are under no obligation to participate in this study. Should you decide to take part you will be free to withdraw from the study at any time, without a reason and without

consequences. Participation or withdrawal from the study will not affect your position in the College or University in any way

❖ Will I receive any compensation?

You will receive £5 for every session.

❖ Who organised this study?

The study is being organised by Angela Tagini at the Department of Psychology, University of Durham, under the supervision of Dr. E. Meins and Professor M. A. Conway. The study is funded by the same department.

If you have any questions or concerns regarding this study, please contact Angela:

Tel. 0191.3343249 ;   e-mail: **angela.tagini@durham.ac.uk**

Appendix 9 Study 2

CONSENT FORM

Memory and Relationship Study
Please cross out as necessary

Have you read the Subject Information Sheet? YES / NO

Have you had an opportunity to ask questions and
discuss the study? YES / NO

Have you received satisfactory answers to all of your questions? YES / NO

Have you received enough information about the study? YES / NO

Who   have   you   spoken   to?   Dr/Mr/Mrs/Ms/Prof.
....

Do you agree to being audio-taped? YES / NO

Do you consent to the confidential use of the recordings
for scientific purposes? YES /NO

Do you understand that you are free to withdraw from the study:

* at any time and
* without having to give a reason for withdrawing and
* without affecting your position in the University or College? YES / NO

Signed   ....   **Date**
....

(NAME   IN   BLOCK   LETTERS)
....

Approved by Durham University's Ethics Advisory Committee

I'm going to be interviewing you about your childhood experiences and about how those experiences affected your adult personality. So I'd like to ask you about your early relationship with your family. We'll focus mainly on your childhood, but later we'll also touch upon your adolescence and how things are now. This interview usually takes about an hour.

1. Could you start by helping me get oriented to your early family situation, and where you lived and so on? If you could tell me where you were born, whether you moved around much, what your family did for a living?

Who would you say raised you?
Did you see much of your grandparents when you were little?
How old were you when they died?
How old was your m /f when your gramdm/f died?

2. I'd like you to try to describe your relationship with your parents as a young child...if you could start back from as far back as you remember? Age 5?

3. /4. Now I'd like you to choose 5 adjectives or words that reflect your relationship with your m/F starting from as far back as you can, remember in early childhood- say age 5 up to age 12. I know this may take a bit of time. I'll write the words down and then I'll ask you why you chose them.

-(I know this can be pretty hard, just take a few more minutes)
Ok, you said your relationship was _____ - are there any specific memories or incidents that come to mind with respect to the word_____ that illustrate why you chose that word?
(-well, just take another minute to see if anything comes to mind, well that's fine let's take the next one)
(-well that's a good general description, but I'm wondering if there was a particular time that happened?)
ask age

5. Now I wonder if you could tell me to which parent did you feel the closest and why?

Why didn't you feel that way about F/M?
(-you have already discussed this, but I'd like you to answer briefly anyway.)
ask age

6. When you were upset as a child what would you do?

(And what would you do when you___?)
ask age
When you were emotionally upset when you were little what would you do?
Can you think of a specific time that happened?
ask age
Can you remember what would happen when you were physically hurt? Again do any specific incidents come to mind?
ask age

What would happen when you were ill?
ask age
Were you ever held by your parents when you were upset, hurt or ill?

7. What is the first time you remember being separated from your parents?

How did you respond?
How did your parents react?
How old were you?
Are there any other separations that stand out in your mind?

8. Did you ever feel rejected as a young child? Of course looking back on it now, you may realise it wasn't really rejection, but what I'm trying to ask about here, is whether you remember ever having felt rejected in childhood.

How old were you when you first felt that way?
What did you do?
Why do you think your parents did those things, do you think they realised that they were making you feel rejected?
(-Did you ever feel pushed away or ignored?)

8a Were you ever frightened or worried as a child?

ask age

9. Were your parents ever threatening with you in any way--- maybe for discipline or even jokingly?

(some people told me for eg. that their parents threatened to send them away or to leave them)
Some people have memories of threats or of some kind of behaviour that was abusive
Did anything like that ever happen in your family?
How old were you at the time?
 Did it happen very often?
Do you feel this experience affects you now as an adult?
Did you have any such experiences involving people outside your family?

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(what did getting the belt mean?)

10. In general, how do you think your overall experiences with your parents have affected your adult personality?

are there any aspects to your early experiences that you feel were a setback in your development?
or is there anything that might have had a negative effect on how you turned out?

11. Why do you think your parents behaved as they did during your childhood?

12. was there any other adult to whom you were close, like parents, as a child?

13. Did you experience the loss of a parent or close loved one while you were a young child---a close family member?

could you tell me about the circumstances?
how old were you?
as the death sudden?
can you recall your feelings at the time?
have your feelings changed much over time?
did you attend the funeral? What was that like for you?
what would you say was the effect on your M/f, household?
Would you say this loss has affected your adult personality?

13a. Did you loose any other important person during your childhood?

13b. In recent years?

14. Other than any difficult experiences you have already descried, have you had any other experiences which you regard as potentially traumatic?
(any experience which was overwhelmingly terrifying?)

15. Now I'd like to ask you a few more questions about your relationship to your parents. Were there many changes in your relationship with your parents after childhood? We'll talk about the present in a moment, I mean changes between your childhood and adulthood.

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16. Now I'd like to ask you about that the relationship is like now.
do you have much contact with your parents at present?
could you tell me about any sources of dissatisfaction in your current relationship to your parents?
any sources of special satisfaction?

17. I'd like to move onto a different kind of question now- it is not about your parents. I'd like you to imagine that you have a one-year-old child. I wonder how would you respond, in terms of feelings, if you had to separate from this child?
do you think you would ever feel worried about this child?

(I'd like to move onto a different kind of question now- it is not about your parents. Instead it's about an aspect of your current relationship with your child. How do you respond now, in terms of feelings, when you separate from your child/children?
do you ever feel worried about your child?

(18. If you had 3 wishes for your child 20 years from now, what would they be? I'm thinking of the kind of future you would like to see for your child. I'll give you a minute to think about this one)

19. Is there any particular thing which you feel you learned above all from your own childhood experiences? Something you might have gained from the kind of childhood you had?

20. We've been focusing a lot on the past in this interview, but I'd like to end by looking at the future. We've just talked about what you may have learned from your own childhood experiences. I'd like to end by asking you what you hope your child might learn from his experience of being parented by you?

Appendix 11 Study 2

Earliest Memory Questionnaire: derived from the Memory Characteristics Questionnaire, (Johnson et al., 1988)

<u>Earliest Memory Characteristics Questionnaire</u>

1. How much is this memory focused on yourself rather than other people, objects of the environment, social interactions etc.

   not at all focused on myself / definitely focused on myself.

2. The memory is about an event that only happened once rather than an event that took place regularly:

   definitely a repeated event / definitely happened only once

3. How important is this memory?   not at all / extremely important

4. How vivid is this memory?   not at all / extremely vivid

5. My memory involves visual detail: not at all / very much so

6. My memory involves sound: not at all / very much so

7. My memory involves smell: not at all / very much so

8. My memory involves touch: not at all / very much so

9. My memory involves taste: not at all / very much so

10. My memory for the event is: sketchy / very detailed

11. The order of events is: confusing / comprehensible

12. The story line is: simple / complex

13. The story line is: bizarre / realistic

14. My memory for the location where the event takes place is:

    vague / clear-distinct

15. The general setting is: unfamiliar/familiar

16. The relative spatial arrangement of objects in the memory is:

    vague / clear-distinct

17. The relative spatial arrangement of people in the memory is:

    vague / clear-distinct

18. My memory for the time when the event takes place is:

    vague / distinct

19. The event seems: short / long

20. The overall tone of the memory is: very negative / very positive

21. In this event I was: definitely a spectator / definitely a participant

22. At the time, the event seemed like it would have serious implications:

    not at all / definitely

23. Looking back, this event did have serious implications:

    not at all / definitely

24. I remember how I felt at the time when the event took place:

    not at all / definitely

25. My feelings at the time were: very negative / very positive

26. My feelings at the time were: not at all intense / very intense

27. I remember what I thought at the time: not at all / very clearly

28. Overall I remember this event: hardly / very well

29. I remember events relating to this memory that took place in advance of this

    event: not at all / very clearly

30. after the event: not at all / very clearly

31. Do you have any doubt about the accuracy of the memory for this event:

    a great deal of doubt / no doubt whatsoever

32. Since it happened I have thought about this event: not at all / many times

33. Since it happened I have talked about this event: not at all / many times

    How many years ago did the event take place? _____ years
    age

Memory Questionnaire

Please fill out the following questionnaire for each memory recalled by referring to the scale from 0 to 6. The mid point 3 indicates uncertainty.

1. How often have you remembered this event:

```
      0      1      2      3      4      5      6
      |_____|_____|_____|_____|_____|_____|
```

Never before   many times before

1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7 □ 8 □ 9 □ 10 □

2. How personally important is this memory to you:

```
      0      1      2      3      4      5      6
      |_____|_____|_____|_____|_____|_____|
```

not at all important   very important

1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7 □ 8 □ 9 □ 10 □

3. How vivid is your memory:

```
      0      1      2      3      4      5      6
      |_____|_____|_____|_____|_____|_____|
```

not at all   very vivid

1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7 □ 8 □ 9 □ 10 □

4. How intense were your feelings at the time:

```
    0      1      2      3      4      5      6
    |_____|_____|_____|_____|_____|_____|
```

not at all intense   very intense

₁☐ ₂☐ ₃☐ ₄☐ ₅☐   ₆☐ ₇☐ ₈☐ ₉☐ ₁₀☐

5. Were your feelings at the time negative or positive:

```
    0      1      2      3      4      5      6
    |_____|_____|_____|_____|_____|_____|
```

very negative   very positive

₁☐ ₂☐ ₃☐ ₄☐ ₅☐   ₆☐ ₇☐ ₈☐ ₉☐ ₁₀☐

6. Is this memory about an event that only happened once (like being stung by a bee) or about an event that took place regularly (like going to pre-school every day:

```
    0      1      2      3      4      5      6
    |_____|_____|_____|_____|_____|_____|
```

definitely a repeated event   definitely happened only once

₁☐ ₂☐ ₃☐ ₄☐ ₅☐ ₆☐ ₇☐ ₈☐ ₉☐ ₁₀☐

7. How intense were your feelings when you were remembering this event today:

```
     0      1      2      3      4      5      6
     |_____|_____|_____|_____|_____|_____|
not at all intense                    very intense
```

₁☐ ₂☐ ₃☐ ₄☐ ₅☐ ₆☐ ₇☐ ₈☐ ₉☐ ₁₀☐

8. How much does this memory reveal or say about you:

```
     0      1      2      3      4      5      6
     |_____|_____|_____|_____|_____|_____|
not much                                  a lot
```

₁☐ ₂☐ ₃☐ ₄☐ ₅☐ ₆☐ ₇☐ ₈☐ ₉☐ ₁₀☐

9. This imaginary event reveals or says about me:

```
     0      1      2      3      4      5      6
     |_____|_____|_____|_____|_____|_____|
not much                                  a lot
```

₁☐ ₂☐ ₃☐ ₄☐ ₅☐ ₆☐ ₇☐ ₈☐ ₉☐ ₁₀☐

10. How likely is it that this event will happen?

```
          0      1      2      3      4      5      6
          |_____|_____|_____|_____|_____|_____|
not at all likely                     extremely likely
```

₁☐ ₂☐ ₃☐ ₄☐ ₅☐ ₆☐ ₇☐ ₈☐ ₉☐ ₁₀☐

11. How many years from now could it occur?

Future Questionnaire

Please fill out the questionnaire for each imagined event by referring to the scale from 0 to 6. A score of 3 indicates uncertainty.

1 How vivid is this imagined event:
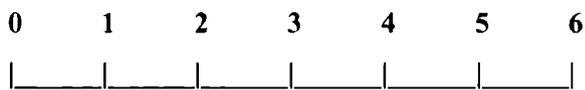
0	1	2	3	4	5	6
I___	___I___	___I___	___I___	___I___	___I___	___I

not at all   extremely vivid

₁□ ₂□ ₃□ ₄□ ₅□ ₆□ ₇□ ₈□ ₉□ ₁₀□

2. I believe my feelings would be:
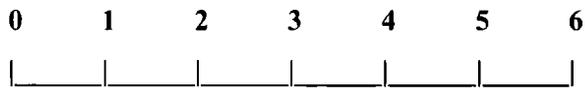
0	1	2	3	4	5	6
I___	___I___	___I___	___I___	___I___	___I___	___I

not at all intense   very intense

₁□ ₂□ ₃□ ₄□ ₅□ ₆□ ₇□ ₈□ ₉□ ₁₀□

3. I believe my feelings would be:

0	1	2	3	4	5	6
I___	___I___	___I___	___I___	___I___	___I___	___I

very negative   very positive

₁□ ₂□ ₃□ ₄□ ₅□ ₆□ ₇□ ₈□ ₉□ ₁₀□

4. This imaginary event reveals or says about me:

```
        0      1      2      3      4      5      6
        |_____|_____|_____|_____|_____|_____|
      not much                                a lot
```

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐

5. How easy was it to imagine this event?

```
        0      1      2      3      4      5      6
        |_____|_____|_____|_____|_____|_____|
      not at all                          very much so
```

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐

6. How likely is it that this event will happen?

```
        0      1      2      3      4      5      6
        |_____|_____|_____|_____|_____|_____|
    not at all likely                  extremely likely
```
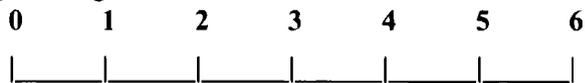
1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐   10 ☐

How many years from now could it occur?

1._____   6._____

2._____   7._____

3._____   8._____

4._____   9._____

5._____   10._____

Appendix 14 Study 3

Beck's Depression Inventory (Beck and Steer, 1987)

Choose one statement from among the group of four statements in each question that best describes how you have been feeling during the **past few days**. Circle the number beside your choice.

1	**0** I do not feel sad. **1** I feel sad. **2** I am sad all the time and I can't snap out of it. **3** I am so sad or unhappy that I can't stand it.	8	**0** I don't feel I am any worse than anybody else. **1** I am critical of myself for my weaknesses or mistakes. **2** I blame myself all the time for my faults. **3** I blame myself for everything bad that happens.
2	**0** I am not particularly discouraged about the future. **1** I feel discouraged about the future. **2** I feel I have nothing to look forward to. **3** I feel that the future is hopeless and that things cannot improve.	9	**0** I don't have any thoughts of killing myself. **1** I have thoughts of killing myself, but I would not carry them out. **2** I would like to kill myself. **3** I would kill myself if I had the chance.
3	**0** I do not feel like a failure. **1** I feel I have failed more than the average person. **2** As I look back on my life, all I can see is a lot of failure. **3** I feel I am a complete failure as a person.	10	**0** I don't cry any more than usual. **1** I cry more now than I used to. **2** I cry all the time now. **3** I used to be able to cry, but now I can't cry even though I want to.
4	**0** I get as much satisfaction out of things as I used to. **1** I don't enjoy things the way I used to. **2** I don't get any real satisfaction out of anything anymore. **3** I am dissatisfied or bored with everything.	11	**0** I am no more irritated by things than I ever am. **1** I am slightly more irritated now than usual. **2** I am quite annoyed or irritated a good deal of the time. **3** I feel irritated all the time now.
5	**0** I don't feel particularly guilty. **1** I feel guilty a good part of the time. **2** I feel quite guilty most of the time. **3** I feel guilty all of the time.	12	**0** I have not lost interest in other people. **1** I am less interested in other people than I used to be. **2** I have lost most of my interest in other people. **3** I have lost all of my interest in other people.
6	**0** I don't feel I am being punished. **1** I feel I may be punished. **2** I expect to be punished. **3** I feel I am being punished.	13	**0** I make decisions about as well as I ever could. **1** I put off making decisions more than I used to. **2** I have greater difficulty in making decisions than before. **3** I can't make decisions at all anymore.
7	**0** I don't feel disappointed in myself. **1** I am disappointed in myself. **2** I am disgusted with myself. **3** I hate myself.	14	**0** I don't feel that I look any worse than I used to. **1** I am worried that I am looking old or unattractive. **2** I feel that there are permanent changes in my appearance that make me look unattractive. **3** I believe that I look ugly.

15	0 I can work about as well as before. 1 It takes an extra effort to get started at doing something. 2 I have to push myself very hard to do anything. 3 I can't do any work at all.	19	0 I haven't lost much weight, if any, lately. 1 I have lost more than five pounds. 2 I have lost more than ten pounds. 3 I have lost more than fifteen pounds. (Score 0 if you have been purposely trying to lose weight.)
16	0 I can sleep as well as usual. 1 I don't sleep as well as I used to. 2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep. 3 I wake up several hours earlier than I used to and cannot get back to sleep.	20	0 I am no more worried about my health than usual. 1 I am worried about physical problems such as aches and pains, or upset stomach, or constipation. 2 I am very worried about physical problems, and it's hard to think of much else. 3 I am so worried about my physical problems that I cannot think about anything else.
17	0 I don't get more tired than usual. 1 I get tired more easily than I used to. 2 I get tired from doing almost anything. 3 I am too tired to do anything.	21	0 I have not noticed any recent change in my interest in sex. 1 I am less interested in sex than I used to be. 2 I am much less interested in sex now. 3 I have lost interested in sex completely.
18	0 My appetite is no worse than usual. 1 My appetite is not as good as it used to be. 2 My appetite is much worse now. 3 I have no appetite at all anymore.		

CT Name: _____   *Ready Score°*

Age: _____ Sex: _____

When I was growing up...	Never True	Rarely True	Sometimes True	Often True	Very Often True
1. I didn't have enough to eat.	●	●	●	●	●
2. I knew that there was someone to take care of me and protect me.	●	●	●	●	●
3. People in my family called me things like "stupid," "lazy," or "ugly."	●	●	●	●	●
4. My parents were too drunk or high to take care of the family.	●	●	●	●	●
5. There was someone in my family who helped me feel that I was important or special.	●	●	●	●	●
6. I had to wear dirty clothes.	●	●	●	●	●
7. I felt loved.	●	●	●	●	●
8. I thought that my parents wished I had never been born.	●	●	●	●	●
9. I got hit so hard by someone in my family that I had to see a doctor or go to the hospital.	●	●	●	●	●
10. There was nothing I wanted to change about my family.	●	●	●	●	●
11. People in my family hit me so hard that it left me with bruises or marks.	●	●	●	●	●
12. I was punished with a belt, a board, a cord, or some other hard object.	●	●	●	●	●
13. People in my family looked out for each other.	●	●	●	●	●
14. People in my family said hurtful or insulting things to me.	●	●	●	●	●
15. I believe that I was physically abused.	●	●	●	●	●
16. I had the perfect childhood.	●	●	●	●	●
17. I got hit or beaten so badly that it was noticed by someone like a teacher, neighbor, or doctor.	●	●	●	●	●
18. I felt that someone in my family hated me.	●	●	●	●	●
19. People in my family felt close to each other.	●	●	●	●	●
20. Someone tried to touch me in a sexual way, or tried to make me touch them.	●	●	●	●	●
21. Someone threatened to hurt me or tell lies about me unless I did something sexual with them.	●	●	●	●	●
22. I had the best family in the world.	●	●	●	●	●
23. Someone tried to make me do sexual things or watch sexual things.	●	●	●	●	●
24. Someone molested me.	●	●	●	●	●
25. I believe that I was emotionally abused.	●	●	●	●	●
26. There was someone to take me to the doctor if I needed it.	●	●	●	●	●
27. I believe that I was sexually abused.	●	●	●	●	●
28. My family was a source of strength and support.	●	●	●	●	●

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Appendix 16 Correlations between ratings for A.A.I. Scales

Table 1 Inter-Rater Correlations for A.A.I. 'Experience Scales (N=40)

	Rater 1							
	Loving	Rejecting	Role Reversal	Pressure to Achieve	Neglect	Idealising	Involving Anger	Derogation
Rater 2								
Mother	0.90**	0.71**	0.83**	0.92**	0.77**	0.87**	0.83**	0.90**
Father	0.73**	0.60**	0.73**	0.73**	0.72**	0.78**	0.73**	0.89**

** $p < .01$.

Table 2 Inter-Rater Correlations for A.A.I. 'State of Mind' Scales (N=40)

	Rater 1
Rater 2	
Derogation of attachment	0.95**
Lack of memory	0.73**
Metacognitive Processing	0.77**
Passivity	0.80**
Fear of Loss	0.82**
Highest score for U/d Loss	0.97**
Highest score for U/d Abuse	0.88**
Coherence of Transcript	0.94**
Coherence of mind	0.92**

** $p < .01$.

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