# SARMAC V ABSTRACTS

## Aberdeen, Scotland
## July 2-6 2003

## Co-Chairs: Lauren R. Shapiro, Amina Memon, Fiona Gabbert, Rhiannon Ellis

## WEDNESDAY, JULY 2ND

**REGISTRATION 2:00 - 5:00 p.m.**

**Auditorium**
**SYMPOSIA 3:15 - 5:15 p.m.**

**Cognitive aspects of anxiety and depression**
**Chair: PAULA HERTEL**
**Contact: phertel@trinity.edu**
**Keywords: Cognitive function, Emotion**

The symposium includes reports of recent research on a variety of topics related to cognition in emotionally disordered states: the interpretation of facial expression, the interpretation and recall of verbal material, autobiographical memory, and the generation of mental models.

**Selective processing of threatening facial expressions: The eyes have it!**
*Elaine Fox*
Previous work suggests that threatening facial expressions are detected more efficiently than happy facial expressions in a visual search task. It is not clear, however, which component of the face indicates threat. Is it a conjunction of features that might indicate threat (e.g., a frown in conjunction with a downward turned mouth), or could the eye or mouth region alone indicate threat efficiently? The present study tested which features of the face produced a threat-superiority effect and whether the level of self-reported trait-anxiety further enhanced this effect. Participants were divided into high and low-anxious groups on the basis of their scores on standardized measures of trait (and state) anxiety. Across several experiments, it was found that the eye-region did produce a threat-superiority effect with upright faces but not with inverted faces, while the mouth region did not. However, high levels of trait-anxiety failed to influence the magnitude of this threat-superiority effect. These results suggest that the configuration of the eyes provides a key signal of threat, and that increased anxiety does not further enhance the ability to detect threatening facial expressions rapidly. In contrast, when eye-regions were presented at fixation and participants had to detect a peripheral target, high anxious people were slower when the facial expression indicated threat (anger) compared to when a happy expression was presented at fixation. This pattern was not observed in low anxious individuals. This result suggests that the component of visual attention that is most affected by self-reported trait-anxiety is the ability to rapidly disengage from threatening stimuli.

**Selective attention and interpretation in anxiety: Alternative manifestations of a common processing bias, or independent pathways to emotional vulnerability?**
*Colin MacLeod, Andrew Mathews*
Vulnerability to anxiety is associated with increased selective attention to threatening stimuli, and with the elevated tendency to impose threatening interpretations on ambiguous information. Our recent research has provided evidence that both such biases can causal influence anxiety responses to stress. It remains unclear, however, whether attentional and interpretive bias reflect the operation of a common selective processing mechanism, or whether they represent independent cognitive effects, that differentially impact on emotional responses to alternative types of stressful events. We report the results of experimentation designed to directly address this issue, by obtaining measures of each type of bias within the same sample of participants, and examining not only their association with one another, but also their capacity to predict emotional reactions to alternative classes of laboratory stressor. This work has led us to develop a single task that yields both an index of attentional bias (the extent to which the more threatening word within a prime pair receives processing), and an index of interpretive bias (the extent to which the more threatening meaning of a homograph prime receives processing), in students who vary in trait anxiety levels. Our laboratory stressors require participants to imagine themselves experiencing scenarios presented textually, but one variant presents differentially valenced information to each ear, while the other instead presents ambiguous information that permits affectively distinctive alternative interpretations. The observed patterns of effects lend weight to the hypothesis that, although attentional and interpretive bias both contribute to

## Experientially established biases in the interpretation and recall of ambiguous words
*Paula Hertel*

Anxious people tend to interpret ambiguous information (faces, homographs) as threatening more often than do others. The purpose of several recent research programs (see Mathews & MacLeod, 2002) has been to simulate these biases in nonanxious people by providing them with previous experience in interpreting in threat-consistent or inconsistent ways. The effects of such "training" have been shown on subsequent cognitive tasks, and sometimes even on measures of anxious mood. First, I summarize the results of two experiments in which a semantic-judgment task was used to train either threat-related or threat-unrelated interpretations of threat-ambiguous homographs (e.g., mug); significant transfer effects on the interpretation of new homographs in an imagery task were found (Hertel, Mathews, Peterson, & Kintner, in press). These results were replicated in a third experiment in which evidence for similarly biased recall was also obtained. Students who scored below the median on an inventory of trait anxiety were randomly assigned to the training of threat or nonthreat-consistent interpretations in the semantic-judgment task (or to receive no training). Those trained the threat-consistent condition made more threat-related interpretations in the subsequent imagery task. Although everyone made more nonthreatening interpretations overall and recalled more of those words (following the imagery task), compared to the recall of threat-interpreted words, the difference between the two categories significantly depended on the type of training condition. The advantage for nonthreatening interpretations was least for those trained to interpret threat. These and other results are discussed in terms of their implications for anxious people in everyday situations.

## Over-general autobiographical memory as depression vulnerability
*Stephanie Rude, Bryce N. Gibb*

The tendency to produce overly general autobiographical memories has been linked to several forms of psychopathology, including depression(Williams & Dritschel, 1988) and seems to be associated with attempts to avoid unpleasant emotions (Kuyken & Brewin, 1995). The current study used a prospective design to explore whether over-general memory constitutes a vulnerability to depression. Eighty nine college students (56 women) completed the Autobiographical Memory Test (AMT; Williams & Broadbent, 1986) in which they were asked to retrieve a specific personal memory (occurring within one day) in response to each of 5 positive, negative, and neutral cue words. Following the AMT, participants were asked to write for 20 minutes about "how your past has shaped the person you are." Participants were asked to be specific and detailed and to explore their deepest thoughts and feelings. Finally, participants completed the Beck Depression Inventory (BDI). Six weeks later, they completed the BDI and the Negative Life Events Questionnaire (NLEQ; Saxe & Abramson, 1987). As predicted, participants above the median in number of over-general memories and those above the median in latency to retrieve specific memories showed increased Time 2 depression (BDI) with increases in the number of negative life events since Time 1 (controlling for Time 1 depression). Those below the median showed no such increases. We conclude that over-general memory appears to potentiate the impact of stressful life events in the development of depression, perhaps because it impedes emotional processing and problem-solving.

## Generative reasoning in depression and aging
*Ulrich von Hecker, Grzegorz Sedek*

The general goal of the presented research was to address the question of whether cognitive impairments in generative reasoning among depressed students or older adults (when compared to control groups) might be explained by similar or rather quite different models of processing limitations. Some integrative reasoning tasks (e.g., linear order construction) seem best solved by the generation of a mental model. Relying on our previous work on mental model generation among depressed and helpless individuals (von Hecker & Sedek, 1999) and referring to predictions from Salthouse`s research on reasoning among older adults (Salthouse, 1992, 2000), we describe here three studies in which contrasting predictions are tested as to the nature of possible dysfunctions in generative forms of reasoning among older adults and depressed participants. The first study confirmed the prediction that depressed students had limitations in generative processing. The second study demonstrated that older adults had no problems with generative thinking; however, they suffered from limitations in memory retrieval , that is, a poor preservation of necessary input information. The third study showed that restricting the available study time in the control group model the processing limitations of older adults, but not those of depressed participants. Additionally, restricting the study time impaired the reasoning performance of the control but not the depressed group. This research demonstrates the integrative benefits of comparing well defined models of processing limitations in reasoning tasks across different populations.

## Take a closer look: Emotion reduces the boundary extension effect
*Bundy Mackintosh, Andrew Mathews*

Evidence has accumulated showing that central aspects of emotional scenes are remembered better than equivalent aspects of non-emotional scenes. A selective attention account of these findings led us to predict that emotional pictures would be recalled as if seen from a closer perspective (i.e. with a less extended background) than neutral pictures. We report findings confirming this perspective difference, and also show that it varies with both anxiety-proneness and emotional arousal. We take these findings as support for the view that attentional capture by central aspects of emotionally arousing aversive scenes can restrict our usual extended impression of surrounding space.

**Auditorium**
**KEYNOTE**
**5:30 - 6:15 p.m.**
**Radical alternatives to traditional lineup procedures**
**ROD LINDSAY**
**Chair: Don Read**
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# THURSDAY, JULY 3RD

**Auditorium**
**KEYNOTE**
**8:45 - 9:30 a.m.**
**False events of memory**
**ELIZABETH LOFTUS**
**Chair: Dan Wright**

**Auditorium**
**SYMPOSIA 9:30 - 10:45 a.m.**
**Focusing on the internal in memories of trauma**
**Chair: ROBYN FIVUSH**
**Contact: psyrf@emory.edu**
**Keywords: Autobiographical memory, Narrative production and comprehension.**

Much of our autobiographical memory focuses on what Bruner has called "the landscape of consciousness," our thoughts and feelings about our life experiences. Because trauma often creates a problem for processing and comprehending experience, many theorists have proposed that traumatic memory may focus on the internal to a greater extent than non-traumatic memory. The papers in this symposium explore this proposal from developmental and longitudinal perspectives. The emerging pattern of results provides a framework for understanding how traumatic memories may be similar and different from non-traumatic memories, and how traumatic memories may change over time.

**Memories of positive and negative events**
*Jennifer Bohanek*
Whereas most memory research has focused on the accuracy of memories for particular events, the focus of this study was to compare the content and evaluation of women's memories of events differing by both emotional valence and intensity. Forty-four women (age 18-21) were instructed to write about an intensely negative, moderately negative, intensely positive, and moderately positive event including both the facts of what happened, as well as their thoughts and feelings surrounding the event, and they also subjectively rated their memories for characteristics such as vividness and significance. The narratives were coded for 5 categories of internal state language: positive and negative emotion, as well as words reflecting cognition, insight, and causation. The narratives were also coded for a global level of coherence. Overall, emotional valence was related to the content of the women's narratives, and emotional intensity was related to the subjective ratings of the memories. Negative narratives contained more negative emotion and cognitive processing words than positive narratives, and positive narratives contained more positive emotion words than negative narratives. Interestingly, there was little relation between the objective content of the narratives and the women's subjective ratings of their memory experiences. Women rated intensely emotional events as more frequently talked/thought about, significant, unique, emotional, and vivid than moderately emotional events, and negative narratives were rated as more emotional than positive narratives. Intensely negative narratives were the longest, and intensely positive narratives were the most coherent. These results have important implications for flashbulb memories, narrative research in general, methodological issues (such as the validity of subjective memory ratings), and the quality of traumatic memories.

**Narratives of 9/11**
*Robyn Fivush, Valerie Edwards*
Several theories of traumatic memory highlight the narrowing of attention, and specifically the focus on internal states, that may occur during the experience and recollection of trauma. It has been further suggested that this focus on the internal may dissipate over time, as the individual begins to process and cope with the trauma. In order to examine this possibility more systematically, we compared three groups of undergraduate students' narratives of the 9/11 terrorist attacks over time: students who knew someone who was killed, students who lived in the New York area but did not know someone who was killed, and students who did not live in New York or know a victim. Students filled out a battery of stress and anxiety measures, and then wrote narratives of 9/11 for 5 days in a row within 6 weeks of the event, and then completed the measures again

and wrote one narrative 6 months later. We predicted that those directly involved would experience higher stress, and would include more words indicative of emotional and cognitive processing than those less directly involved and, further that this group would show a less steep decrease in stress and in the use of these kinds of internal state words over time. Inspection of a subset of the transcribed data support these predictions. Ongoing analyses will include the full sample, as well as relating the cognitive and emotional content of the narratives to individual ratings of stress and well-being both immediately and over time.

## Communicating emotions and cognitions about traumatic and nontraumatic
*Patricia J. Bauer*
A question of major significance is whether memories of traumatic and nontraumatic events differ quantitatively and/or qualitatively. Because traumatic experiences engender such strong emotions, as well as cognitive reflection and evaluation, language about internal states is a prime domain for address of this question. Examination of use of internal states language in the context of mother-child conversations has the added benefit of informing as to whether the process of socialization of internal states language in autobiographical narrative is different for traumatic and nontraumatic events. We examined mother-child conversations about a devastating tornado and about two nontraumatic events to determine whether there are (a) differences in mother's and/or children's use of internal states language in narratives about the two types of events, and (b) similarities in mothers' and children's use of internal states language. Four months after the tornado, with conversational length controlled, there was no evidence of differential use of internal states language as a function of event, for mothers or children. Six months later (10 months after the tornado), older children's narratives about the tornado were more saturated with internal states language. There was evidence of internalization by children of their mothers' emotion language use: For both traumatic and nontraumatic events, there were correlations between maternal use of emotion language at Session 1 and children's use of emotion language at Session 2. The findings suggest differential socialization across internal states categories, but that the process of socialization of emotion language is similar for traumatic and nontraumatic events.

## Stressing memory: Long-term relations among children's stress, recall, and psychological outcome following Hurricane Andrew
*Jessica McDermott Sales, Robyn Fivush, Janat Parker, Lorraine Bahrick*
Hundreds of children were affected by Hurricane Andrew, one of the most destructive natural disasters to occur in the United States. This study examined relations among individual level of stress, content of children's recall of Hurricane Andrew, and long term psychological functioning. Three to 4-year-old children were interviewed within a few months following the storm, and again six years later. The adult literature suggests that the emotional and cognitive content of one's memories has a significant impact on one's well-being. Thus interviews were coded to examine the emotional and cognitive content of children's recall. Additionally, children's stress levels were assessed by multiple measurements collected at either one or both interviews. Children remembered the hurricane in vivid detail, and they continued to be emotionally affected by the hurricane even years later. At the initial interviews, children who were more stressed included less positive emotion, fewer cognitive processing words, provided less information overall and less free recall in their narratives. In contrast, children who were less stressed included more cognitive processing words and recalled more information. When re-interviewed 6 years later, the children who had been more stressed initially included more negative emotion and cognitive processing words, but provided less information during free recall. Children who had initially used more positive emotion words and recalled more information displayed lower stress scores 6 years later. Implications for children's remembering and coping with traumatic events will be discussed.

**Discussant:** *Lynne Baker-Ward*

**KCF7**
**SYMPOSIA 9:30 - 10:45 a.m.**
**Memory Conformity: How do people influence each other's memories?**
**Chair: FIONA GABBERT**
**Contact: f.gabbert@abdn.ac.uk**
**Keywords: General memory, Social cognition**

Five papers investigate how one's knowledge of another person's memory can influence one's own memory. Each paper within the symposium approaches this topic from a different perspective, from exploring the effects of discussion between eyewitnesses, to questioning how and why memory conformity might occur. To meet the growing interest in this area of research, the symposium brings together a varied collection of studies each addressing a common theme.

## Co-witness contamination: The effects of witness discussion on subsequent recall and recognition
*Helen Paterson, Richard Kemp*
This presentation focuses on the effects of co-witness information on the accuracy and comprehensiveness of eyewitness memory. Co-witness information is defined as information that one eyewitness conveys to another eyewitness about an event that they both observed. It is standard practice for police and other legal personnel to attempt to prevent eyewitnesses from discussing the event with each other, however it is clear that witnesses do often talk to each other about the event. Experiments are described which examine the effects of post event information encountered through discussion with other witnesses. In each study, participants were shown a crime video and then asked to discuss the video in groups

(some of which received experimentally induced misinformation). Finally, participants were asked to give their individual accounts of what happened. It was found that there are both advantages and disadvantages of co-witness discussion, depending on the methodology employed. Furthermore, some evidence suggests that it may be possible to distinguish between 'real' memory and information obtained from a co-witness. These results are discussed in terms of methodological considerations, theory, and policy implications.

## The effects of discussion and prior acquaintance on the recall of contradictory details of a simulated crime.
*Samantha Foster, James Ost*
This study investigated the effects of discussion and self-reported level of acquaintance on the recall of contradictory elements of a videotaped, staged theft. The experiment employed a 2 (pre-discussion recall vs. post-discussion recall) x 4 (stranger/friend/partner/individual) mixed design. The dependant variables were the (a) proportion of correct responses, (b) mean confidence and (c) testimonial validity. Fifty-nine participants (37 females and 22 males) were recruited. Participants individually watched a videotape of a staged theft, completed a multiple-choice questionnaire concerning details of the crime and provided confidence ratings for those details. Participants then either thought about the video for 10 minutes (no discussion condition), or discussed the video for 10 minutes in a dyad (discussion condition). Critically, in the discussion condition, each member of the dyad saw a slightly different version of the videotaped theft in which five details had been deliberately altered. Further, to examine the possible effects of familiarity with the other person in the dyad, participants in the discussion condition were asked to self-rate their level of acquaintance. All participants were then asked individually to complete the multiple-choice questionnaire for a second time. Twelve between-within subjects ANOVAs were conducted. For details of the video that were seen the same by both members of the dyad, discussion had little positive or negative effect on individual recall and testimonial validity. For details of the video that had been seen differently by each member of the dyad, discussion negatively effected both individual recall and testimonial validity. Contrary to expectation, there were no differences as a function of participants' self-rated level of acquaintance. Implications will be discussed.

## Asymmetric Effects in Memory Conformity
*Daniel B. Wright, Sorcha Mathews*
Two experiments show that people's recognition memory for words and pictures of automobiles can be affected by what another person says. Participants viewed either a set of words or automobiles with a confederate, and then they were tested using an old/new recognition test. The confederate responded first. Both experiments showed similar patterns. The memory conformity effects, where the participant responded with what the confederate said, were of similar magnitudes in the studies. For both studies, there the effect was not the same for items previously seen and unseen. The effect was larger for convincing someone that a previously unseen item was present, than to make them say that an item which they had seen was not present. We discuss this asymmetry in relation to social and cognitive explanations for the memory conformity effect. We also varied the frequency of the words (high and low frequency, and non-words) and how unique/memorable the automobiles were. These had different levels of accuracy, but did not vary in their susceptibility to conformity effects.

## Investigating Eyewitness Conformity Effects for a Simulated Crime
*Fiona Gabbert, Amina Memon, Kevin Allan, Daniel B. Wright*
In everyday life it is natural for people to discuss their shared experiences. However, because memories are not infallible, sometimes one person will introduce inaccurate information into the conversation. Our past research has shown that this information can be incorporated into the other person's memory, and subsequently reported as their own recall of the event. This 'conformity' effect is stronger than the effect of more commonly used experimental methods of misleading eyewitnesses, such as post-event narratives.
Our current research investigates factors underlying memory conformity. We address forensically relevant questions, asking whether memory conformity is an inevitable result of discussion, or whether it only occurs in certain interactions. Participants were tested in pairs. Each member watched a different version of the same event. They later discussed the event together before individually providing a written summary of what they had seen. A battery of individual difference measures were used to explore whether memory conformity was related to particular personality characteristics. In addition the naturally occurring discussions were audio-taped, transcribed and analysed. Our most striking finding was that the witness initiating the discussion was most likely to influence the other witness's memory report. In other words, the witness initiating the discussion was the most resistant to influence even when their memory was disputed by their co-witness.

## Memory distortions as a function of social influence and meta-cognitive knowledge
*Eva Walther*
It is asked under which conditions individuals fall prey to the influence of a group of others when they are uncertain as to whether an event has actually occurred. We suggested that judgments of others have an impact on memory reports only if other sources of information (e.g., metacognitive knowledge) are not sufficiently applicable to resolve uncertainty. Using a standard recognition paradigm, we examined in two experiments how individuals were influenced by the judgments of a bogus group when they were asked about stimuli that had never been presented. Following traditional research on social influence (cf. Asch, 1951; Festinger, 1954; Sherif, 1936), it is assumed that social influence on memory is similar to the influence that others exert on behaviors and attitudes, with three variables determining the impact of a group: uncertainty, group size, and the presence of dissenters. In two experimental studies we investigated how false memory reports provided by anonymous group members affect individuals' recognition. Participants were presented with a series of salient and non-salient objects and recognition memory was subsequently assessed for presented and non-presented stimuli. In this recognition test, participants were confronted with (in)correct responses from bogus group members. The findings indicate that the bogus answers influenced memory reports only in the absence of a clear recollection and if the stimulus was not judged to be particularly memorable. Moreover, we found no evidence that

motivational influences affected participants' judgments. However, the influence of the bogus group decreased with the presence of dissenters who broke the unanimity of the group, and it increased with higher uncertainty.

**KCF8**
**SYMPOSIA 9:30 - 10:45 a.m.**
**Detection of malingering**
**Chairs: MARKO JELICIC, HARALD MERCKELBACH**
**Contact: m.jelicic@psychology.unimaas.nl**
**Keywords: Malingering, Reasoning and decision making**

People involved in legal matters sometimes simulate memory and other cognitive impairments. Such malingering may take place in order to obtain financial compensation for alleged brain damage or to avoid imprisonment by claiming insanity. This symposium will deal with different aspects of the detection of malingering. First, methodological issues of research on identifying malingerers will be discussed. The following three presentations will deal with the usefulness of different malingering tests and questionnaires. The last presentation will discuss the influence of coaching on the detection of malingering with special malingering tests.

**From north to south and back - evaluating different tests of "lowered effort" with simulators and patients**
*Jonathan K. Foster*
Malingering tests (or tests of `lowered effort`) can be evaluated in two main contexts: a) in simulators who have been instructed to `fake bad` and b) in patients who are suspected of exaggerating their cognitive symptoms. In the case of a), simulators are often psychology students who (it is often assumed) may possess a relatively sophisticated knowledge of memory and memory impairment. Performance of these simulators on tests of malingering is typically compared with the memory performance of a demographically comparable control group of individuals who are instructed to perform to the best of their ability. Tests of lowered effort are evaluated with respect to their sensitivity and specificity in determining (via a cut-off score) which participants belong to each of these two `simulator` and `best effort`groups. In the case of b) patients who are suspected of exaggerating their cognitive symptoms, it is of course more problematic to determine whether or not the individual is in fact `faking bad` without reference to cut-off scores which have typically been established through alternative means. The focus of our research to date has been to evaluate (in a comparative manner)novel and more established tests of lowered effort in simulators (and controls) rather than in patients, but we are now beginning to apply these tests in litigating versus non-litigating patients who have sustained an alleged brain injury. Relevant findings concerning sensitivity, specificity and other relevant test characteristics will be discussed.

**Symptom validity testing: Clinical applications and implications for research**
*Ben Schmand*
Malingering tests have been designed for application in forensic settings. Originally, their purpose was to test the validity of cognitive symptoms in the context of litigation, workmen's compensation claims, and the like. However, these tests may also be applied very fruitfully in clinical settings. In cases with cognitive complaints of unclear aetiology, such as those in chronic fatigue syndrome, late whiplash, other chronic pain syndromes, and chronic toxic encephalopathy ('painter's disease'), malingering tests may serve to separate 'bona fide' patients from somatisers and aggravators. After removing the noise caused by these latter groups, there remains very little evidence for cognitive disorders in these syndromes. When applied in psychiatric syndromes, such as depression and schizophrenia, malingering tests may serve as a methodological check of the effort invested by the patients during cognitive evaluation. Examples of these clinical applications from the literature and from own research will be reviewed. Some of the most surprising findings will be discussed, as well as their implications for research in cognitive neuropsychiatry.

**Diagnostic accuracy of the SIMS in detecting malingering of psychopathological symptoms**
*Harald Merckelbach*

The Structured Inventory of Malingered Symptomatology (SIMS) is a self-report measure that intends to screen for malingering tendencies. The 75 yes-no items of the SIMS tap commonly malingered conditions, like psychosis and amnestic disorder. The items describe symptoms in such way that they are plausible to naïve people, but highly suspicious to specialists (e.g., "I have difficulty remembering the day of the week").In this presentation, we address the psychometric properties of a Dutch translation of the SIMS when administered to diverse samples of undergraduate psychology students and psychiatric inpatients. In the normal samples, some participants were instructed to simulate symptoms, while others were asked to respond honestly. Findings show that our SIMS version possesses good test-retest reliability and internal consistency. Also, simulation findings indicate that undergraduate students instructed to simulate pathology display higher SIMS scores than either normal controls or psychiatric inpatients. Data pooled over several samples (N= 298) yielded sensitivity, specificity, and Positive Predictive Power (PPP) rates that were all relatively high ($\geq 0.90$). However, we also found robust correlations ( r's > 0.50) between SIMS scores, depression, and trait anxiety. The precise meaning of this overlap is unclear: does it mean that people with high SIMS scores also overendorse symptoms on scales that are thought to tap real psychopathology or does it mean that depressive and anxious people have a tendency to exaggerate their symptoms? All in all, our findings provide a basis for cautious optimism regarding the usefulness of the SIMS as a screening tool for malingering.

## "Supernormality" in psychopathy: Development of a new instrument
*Maaike Cima*

It has often been suggested that psychopaths are successful malingerers. This assumes that psychopathic individuals have a tendency to display one particular type of deception (i.e., exaggeration). However, it may well be the case that the link between psychopathy and deceptive behaviour is strongly affected by the context. For instance, the psychopathic patient in a mental institution might try to deny psychopathology in an attempt to make a healthy impression on his evaluators. The term 'supernormality' refers to the tendency to systematically deny the presence of common symptoms (e.g., intrusive thoughts). A previous study described the psychometric qualities of a 37 item self-report measure of supernormality (i.e., Supernormality Scale; SS). Results showed that the accuracy parameters for the SS (i.e., sensitivity and specificity) were rather poor. Although, the findings indicated that the SS was a useful research tool for measuring feigning of healthy behaviour, it certainly needed improvement. In a follow-up study, the SS was revised (i.e., Supernormality Scale-Revised; SS-R). This 72 item questionnaire was administered to normal individuals, noncriminal psychiatric patients, nonpsychiatric delinquents, and a heterogeneous sample of forensic patients. In the forensic patient sample, SS-R scores were correlated with psychopathic personality characteristics as measured with the Psychopathic Personality Inventory (PPI). In addition, as a way to establish the validity of the SS-R, a thought suppression paradigm was conducted within two different samples of sexual offenders. We predicted that high scores of faking good on the SS-R would go hand in hand with a suspicious low frequency of target thoughts during thought suppression. Results of this study will be discussed.

## Effects of coaching on instruments developed to detect malingering of memory impairments
*Marko Jelicic*

Faking of memory and other cognitive impairments occurs in people seeking financial compensation for alleged brain damage. Because clinicians have great difficulty identifying malingering of memory impairments, special instruments have been developed to detect malingering. Most of these instruments are based on the assumption that malingerers do not know that genuine patients exhibit relatively normal performance on some tests and questionnaires. On these instruments malingerers show lower performance or more symptoms than real patients. It has been suggested in the literature that coaching, i.e. providing information about brain damage, would render special malinger tests invalid. We studied the effects of coaching on two instruments used to identify malingering of memory impairments, the Amsterdam Short Term Memory test (ASTM) and the Structured Inventory of Malingered Symptomatology (SIMS). These two instruments were administered to three groups of undergraduate students. The control group consisted of 30 participants asked to perform honestly, a naïve malinger group consisting of 30 participants asked to simulate memory impairments brought about by brain damage, and a informed malinger group comprising 30 participants who were given some information about brain damage and then asked to simulate memory impairments. The ASTM and the SIMS were able to identify both naïve and informed malingers (sensitivity rates > .70). Control participants were also identified as non-malingerers (specificity rates > .90). Our findings suggest that the ASTM and the SIMS are relatively immune to the effects of coaching.

**Auditorium**
**SYMPOSIA 11:05 a.m. - 12:20 p.m.**
**When we change autobiographical belief, do we also change memory?**
**Chair: GIULIANA MAZZONI**
**Contact: mazzongi@shu.edu**
**Keywords: Autobiographical memory, False memories, Suggestibility.**

"We investigated the role of fluency and familiarity in the formation of false memories. Subjects completed a Life Events Inventory in which one-half of the items contained scrambled key words (e.g., ""broke a dnwoiw playing ball""). Subjects rated whether these life events had occurred in their childhood before the age of 10. In a series of experiments, we show how the act of unscrambling a key word in an event description increases subjects` confidence that the event occurred not only in their own childhood but also in the childhood of others. In another line of studies involving incidental and deliberate exposure to key words (subjects first count vowels in or vividly imagine key words, e.g., ""window,"" that later appear in an event description, e.g., ""broke a window playing ball""), we failed to increase subjects` confidence. These results indicate that.prior exposure to words and unscrambling words can, in some cases, produce fluency that leads to a feeling of familiarity. When the source of the fluency is obscure, people will search for potential reasons (sources) to explain the fluency. In the absence of an obvious or reasonable source, people misattribute the fluency to their own childhood. The act of correctly unscrambling an anagram can produce a surge of fluency, akin to an ""aha"" experience, that people fail to attribute to the act of unscrambling. Instead, they misattribute their feeling of familiarity to their own childhood. These findings suggest that false memories can arise, in part, through the misattribution of familiarity.

## Unscrambling one's past
*Daniel M. Bernstein, Ryan Godfrey, Elizabeth F. Loftus*

Recently, Wade et al. (2002) showed that 50% of adult subjects developed false memories when presented with doctored photos of a fictitious childhood event. We adapted this doctored photo method to investigate the effects of plausibility and childhood amnesia on children's false memories. Six and 10-year old children were interviewed three times over the course of a week. At each interview children were presented with four photos, two real and two false. We varied two factors. First, we varied the plausibility of the false events (plausible, implausible). Second, we varied the age at which the event purportedly occurred (age 2 or 6). Children were asked to describe what they could remember about the event, and then rate "how much" they could remember and "how sure" they were that the event had happened. Six year olds reported high belief

but did not provide a great deal of information about the events. For the 10-year old children, those who were recalling events from age 2 were more likely to produce false reports than those recalling events from age 6. These results suggest that childhood amnesia may play a role in the development of false memories.

**The effect of false information and imagination on false beliefs and false memories**
*Stefanie Sharman, Giuliana Mazzoni, Irving Kirsch, Maryanne Garry*
Subjects completed a Life Events Inventory in which one-half of the items contained scrambled key words (e.g., "broke a dnwoiw playing ball"). Subjects were asked to determine whether these life events had occurred in their childhood before the age of 10. In a series of experiments, we show how the act of unscrambling a key word in an event description increases subjects` confidence that the event personally occurred. In another line of studies involving incidental and deliberate exposure to key words (subjects count vowels in or vividly imagine key words), we failed to increase subjects` confidence. We discuss the role of familiarity misattribution in the formation of false memories. Specifically, we discuss how fluency can be misattributed to one`s past by altering the availability of potential sources that could explain the fluency.

**Measuring autobiographical memories and beliefs**
*Alan Scoboria, Giuliana Mazzoni, Irving Kirsch, Mark Relya*
Research has shown that giving people false suggestions can make them recall events that never happened (eg, Loftus & Pickrell, 1995). Research has also shown that asking people to imagine fictitious events makes them more confident that those events really happened (Garry, Manning, Loftus, & Sherman, 1996). We examined the combined and separate effects of false suggestions and imagination on the creation of false beliefs and false memories, using a three-stage procedure. First, participants provided belief and memory ratings for a list of childhood events. Second, participants (a) were told that the false haircut event happened to them; (b) imagined the haircut; (c) were both told it had happened and imagined it, or (d) were in the control condition. Third, all participants completed the belief and memory ratings again.
We found that only false information produced false beliefs: participants who were told the event happened became more confident that it really had. Imagination enhanced memories of the false haircut event, but only for participants who were not told that the event had happened. Our results have both theoretical and practical implications. They confirm predictions from a theoretical model (Mazzoni & Kirsch, in press); they suggest that imagination alone is powerful enough to create false memories, and they reveal the ease with which memories for events that never happened can be implanted.

**Inferring probable constituents: Belief versus memory in the 'memory wars.'**
*James Ost*
In the false memory literature, measures of one construct are sometimes used as stand-ins for related constructs. Measures of autobiographical belief are often used as a measure of autobiographical memory, and script knowledge has been used to infer the plausibility of an event. The present study tested these assumptions by investigating the relationship between plausibility, belief, memory, and script knowledge for events. 685 undergraduate students completed measures of plausibility, belief and memory, and script descriptions for a series of 10 hypothetical childhood events. Results indicate that the constructs of plausibility, belief and memory are distinct, and correlate with one another in a predictable manner. Script knowledge did not correlate with any of the constructs.

**A right royal road to false childhood memory**
*Deryn Strange, Rachel Sutherland, Maryanne Garry, Harlene Hayne*
A fundamental disagreement exists over the findings of laboratory studies of false memory. Some researchers claim these provide impressive demonstrations of false memory, whilst others use exactly the same findings to support the argument that such memories are extremely difficult to 'implant'. There is nevertheless agreement that 'memory' should be the central issue. But is this really the case? This paper will review the disagreements concerning false memory in the published literature, as well as presenting the findings from our own research with retractors (individuals who have repudiated their earlier claims of abuse). Analysis, both of the literature, and of retractors' accounts, indicates that 'memory' should not be the sole focus of the false/recovered memory debate. Examination of retractors' accounts suggests that, in some cases, a belief is, in itself a sufficient condition for making an accusation of abuse. There are also similarities between retractors' accounts of coming to make accusations of abuse, and those of individuals who have come to confess falsely in police interrogations. It would seem that what we believe about the past may, in some cases, be more important than what we remember about it.

The relationship between emotional arousal and memory is complex. Accordingly, the papers in this symposium investigate this relationship using various interesting approaches. The first paper measures the effects of physiological arousal on event recall and identification accuracy for

a sequential lineup. The second paper investigates the association between arousal (state and trait anxiety), source identification and ability to detect misleading details, while the third focuses on the role of emotion in the creation of false memories using the Deese-Roediger-McDermott paradigm. The final paper examines the effect of visually- versus thematically-induced emotion on memory for central and peripheral details. A discussion, led by Paula Hertel, follows these four papers.

## Affecting memories: Emotional arousal and eyewitness testimony
*Lynn Hulse, Amina Memon, Kevin Allan*

At present, there are three somewhat conflicting main theories about the effects of emotional arousal on memory for events. One theory suggests that emotional arousal impairs memory, another suggests that it enhances memory, and the third proposes that it has selective effects on memory for different types of details. The current study aimed to explore the relationship between emotional arousal and memory by applying both physiological and behavioural measures of arousal, recall and recognition to an eyewitness paradigm. Emotional arousal is somewhat inherent in crime events due to their often violent or upsetting nature. Moreover, the reliability and accuracy of eyewitness memory is crucial to help the police and courts uphold justice. Thus, we presented sixty participants (university undergraduates) with either an emotionally arousing video event depicting a crime, or a relatively neutral event. Memory for event details was then assessed by performance on a written cued-recall measure and a sequential lineup task, which included a picture of the target from the witnessed event. Physiological activity (skin conductance, heart rate) was recorded while participants viewed the event stimuli and lineup. In addition, participants were asked to complete self-report questionnaires about emotions they experienced and, finally, Spielberger's (1983) Trait Anxiety Scale. The results of this study are discussed in the light of the aforementioned theories of emotion and memory and provide insight into whether self-report and physiological measures of arousal predict memory for event details and accuracy of identification.

## The effect of state and trait anxiety on suggestibility in a source identification paradigm
*Anne M. Ridley, Brian R. Clifford*

Source identification (ID) tests as used by Zaragoza and her colleagues (e.g. Mitchell & Zaragoza, 1996) provide a more stringent method for testing suggestibility effects than the standard suggestibility paradigm because they reduce response bias and experimental demand characteristics. They also provide a way of differentiating between reductions in suggestibility due to two very different processes: correct source identification, and the non-recognition or forgetting of misleading information. Being able to discriminate between these processes is particularly important when investigating individual differences and suggestibility. In this study using 56 undergraduates, we investigated how state and trait anxiety (as measured by the STAI; Spielberger, Gorsuch, Luschene, Vagg & Jacobs, 1983) affect the ability to identify correctly the source of misleading post-event information. Multiple regression was used to analyse the data. The results showed that state anxiety was negatively related to suggestibility (p <.01). This relationship was moderated by trait anxiety. The strongest relationship between state anxiety and suggestibility was found when trait anxiety was high. Non-recognition or forgetting of post-event information was positively related to trait anxiety. A source identification task cannot take place if post-event information is not recognised. It was found that the exclusion of unrecognised misleading items from the analyses increased the size of the effect of state anxiety on suggestibility. The key finding that state anxiety is associated with reduced suggestibility will be discussed in relation to the literature on individual differences and suggestibility, source monitoring, and anxiety and cognition.

## Bad experiences, bad memory?
*Joanne Sangster, Kevin Allan*

The effect of emotion on memory is a complex one. To try and establish how and why emotion can exert a disruptive affect on memory it is necessary to investigate paradigms in which emotional stimuli results in false memory. Therefore, the underlying processes can be uncovered and an understanding of what influences accurate memory recall can be achieved. There has been a vast amount of research into false memory for words using the DRM paradigm (Roediger & McDermott, 1995). However, there has been a serious lack of research into how emotional content of stimuli in the DRM paradigm can lead to differences in false memory. This research focuses on the use of categorised emotional pictures to establish how the effect of categorization and, more importantly, the effect of emotion disrupts accurate recognition of previously experienced items as well as false alarms to novel items. To date, this paradigm has discovered that there are no differences in the false alarm rates for different emotions (positive, negative and neutral), whereas there are significant differences between baseline false memory and false memory for categorised items. These results seem to suggest that the influence of emotion may only occur when certain types of memory processes are involved (e.g. source memory) and not when responses are highly influenced by perceptual and conceptual similarity. False alarming in this modified version of the DRM paradigm may be solely related to the converging characteristics of the pictures.

## The contrast between thematically- and visually-induced emotion: A broader view of memory narrowing
*Cara Laney, Friderike Heuer, Daniel Reisberg*

Previous research suggests a multiplicity of effects of emotional arousal on memory. First, memory is better for emotionally arousing events than for matched emotionally neutral events. Second, attention seems to be narrowed in emotionally arousing circumstances, so that emotion specifically enhances memory for the "centre" of the to-be-remembered event, but at the expense of that event`s "periphery." We argue, however, that these previous studies may not be generalizable to all emotional memories. In particular, the memory narrowing shown in these studies may be an artifact of how emotion was induced in these earlier procedures through the use of an attention-grabbing emotional stimulus (e.g., the sight of a bloody wound). We report data showing that this "visually-induced arousal" is atypical for emotional events outside of the laboratory; the

vast majority of naturally-occurring emotional memories instead involve "thematically-induced arousal." We then report two laboratory studies, asking how thematically-arousing events are remembered. In both studies, arousal was produced through participants` empathy with the themes of the to-be-remembered materials, and not through the introduction of shocking or arousing visual stimuli. Participants` physiological and subjective levels of arousal were assessed and recognition memory was tested for both gist and details of the two stimulus sets. In both studies, participants in the arousal groups had better memories overall, suggesting that the enhanced memory is a feature of all emotional events. However, participants showed no indication of narrowed memories, relative to those in the neutral groups, suggesting that the narrowing phenomenon is not a product of arousal.

**Discussant:** *Paula Hertel*

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**KCF 8**
**SYMPOSIA 11:05 a.m. - 12:20 p.m.**
**Eyewitness identification: Witness confidence, identification**
**accuracy and investigator beliefs**
**Chair: NEIL BREWER**
**Contact: neil.brewer@flinders.edu.au**
**Keywords: Confidence-accuracy relationship, Eyewitness testimony, Face perception and identification.**

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Given the important role played by eyewitness identifications in criminal investigations, researchers have focused on the diagnosticity of independent markers of eyewitness identification accuracy. One influential marker within the justice system has been eyewitness confidence. With strong empirical support for the confidence-accuracy relationship not forthcoming psychologists remain pessimistic about its diagnostic value. In this symposium we present new research on the confidence-accuracy relationship. This research (a) highlights new aspects of the relationship in eyewitness identification and face recognition, (b) explores the source of confidence inflation produced by post-identification feedback, and (c) shows how identifications shape investigators? confidence and actions.

**Confidence-accuracy calibration in eyewitness identification**
*Neil Brewer, Gary L. Wells*
There is a now a substantial body of empirical research on the confidence-accuracy relation in eyewitness identification which demonstrates weak or, at best, modest relations between the two variables, thus suggesting that eyewitness confidence should be of little diagnostic value. Recent research in our laboratory and elsewhere with large samples, while confirming the typically modest confidence-accuracy correlation, has also used a procedure known as confidence-accuracy calibration to demonstrate impressive confidence-accuracy relations, at least under certain experimental conditions. Here we report a new study in which participants (N = 1,200) viewed a simulated crime and attempted identifications of two targets from separate 8-person photoarrays under one of several experimental conditions: (1) unbiased vs biased lineup instructions (i.e., witnesses warned or not warned about the possible absence of the offender/target from the photoarray); (2) high vs low similarity of photoarray foils to the target; and (3) target-present vs target-absent array. The typical modest confidence-accuracy correlations were detected across all experimental conditions. There were sizable variations in identification response patterns across the different identification stimuli and experimental conditions. Variations in the closeness of confidence-accuracy calibration were examined across these conditions and, importantly, in response to different base rates of target-absent lineups.

**Confidence-accuracy calibration in face recognition: Effects of judgment type vs. task difficulty**
*Nathan Weber, Neil Brewer*
Differences between sequential and simultaneous lineups are largely attributed to the processing strategies encouraged by the two different lineups. Specifically, simultaneous lineups are posited to encourage relative judgment strategies, whereas sequential lineups predispose witnesses to the use of absolute judgment strategies. Following Weber and Brewer (in press), who demonstrated differences in confidence-accuracy calibration between the two judgment types, we report two experiments that investigate the processes underlying relative and absolute face recognition judgments. Specifically, we examine the difference in confidence-accuracy calibration between absolute and relative judgments across different levels of task difficulty. Both experiments employed a face recognition paradigm where participants viewed a series of faces in a study phase then, after completing a distracter task, made recognition judgments about a series of individual faces (absolute judgments) or pairs of faces (relative judgments). In experiment 1 the difficulty of the recognition task was varied by manipulating the exposure duration of the faces in the study phase. In experiment 2 the difficulty of the recognition task was varied by manipulating the exposure duration of faces in the test phase. Results from both experiments indicated that participants tended to become more overconfident (or less underconfident) with increasing task difficulty. Further, equivalent calibration was observed for both judgment types in situations of equivalent task difficulty suggesting that the calibration differences observed previously were likely due to differences in difficulty between absolute and relative judgments not to differences in decision making processes. Implications for face recognition memory models and eyewitness identification are discussed.

**The effects of intervening confidence assessments on the eyewitness post-identification feedback effect**
*Carolyn Semmler, Neil Brewer*

Several studies have established that feedback to eyewitnesses indicating the accuracy of their identification decision is likely to influence their judgments of the subjective probability that they made the correct decision. Despite the robust nature of the post-identification feedback effect, we have little knowledge of the mechanisms underlying the effect. This study explored the possibility that the extent of the post-identification feedback effect is related to the ease or extent to which confidence cues are accessed. Specifically, we examined the impact on the post-identification feedback effect of requiring participants first to make an identification, then to make a series of confidence judgments in relation to subsequent identifications, and finally to make a confidence judgment about the original identification. Thus, the experimental conditions varied the number and type of judgments made between the first identification and the eventual delivery of feedback, with participants given confirming or no feedback just prior to making their confidence estimate for the initial identification. We examined whether participants who made multiple identifications and confidence judgments either (a) might have had more difficulty accessing relevant confidence cues for the initial identification and hence were more susceptible to the effects of post-identification feedback than participants who only accessed confidence cues associated with a single identification, or (b) might have been more likely to access confidence cues for the initial identification and to be less dependent on externally provided cues. The findings are discussed in terms of their impact on theories of post-identification confidence inflation.

### Investigating witnesses' influence on investigators: A new method and some preliminary findings
*Leora C. Dahl, D. Stephen Lindsay, C.A. Elizabeth Brimacombe*

Eyewitness identifications often play a key role in police investigations and prosecutions. Inspired by practical concerns of wrongful imprisonment, psychologists have studied eyewitness identifications for nearly a century. Eyewitnesses? lineup performance is an important issue, but this area of research neglects another important player in the forensic drama: The investigator who collects the evidence. There is little research on how investigators conduct lineup tests, and even less is known about how investigators weigh identification evidence in the context of other evidence pertaining to the crime. To address such issues, we have developed a new method in which subject/investigators interview witnesses, search a computer database of potential culprits to find a suspect, and rate the probability that the suspect they chose is the culprit. Thereafter, investigators administer a lineup (that includes their chosen suspect) to the witnesses. Finally, investigators re-rate their confidence in the suspect?s guilt. We speculate that investigators tend to be greatly swayed by eyewitness identification testimony (even when it is inaccurate, and even when it conflicts with more solid grounds for decisions). In the studies we report here, the ?investigators? were university undergraduates and the witness was a confederate, who either identified the investigator?s suspect, identified a similar-looking lineup member, identified a dissimilar-looking lineup member, or indicated that the perpetrator was not present in the lineup. The studies revealed that an eyewitness? identification decision greatly influences investigators? confidence in their choice of suspect, confidence in the witness, and decision to arrest the suspect.

**Auditorium**
**SYMPOSIA 1:20 - 2:35 p.m**
**Face composite production by eyewitnesses:**
**New technologies and developments**
**Chairs: DAWN MCQUISTON, COLIN TREDOUX**
**Contact: dmcquist@utep.edu**
**Keywords: Eyewitness testimony, Face perception and identification.**

Crime witnesses are often asked by police to create visual likenesses of faces. This is most frequently achieved with the assistance of technical devices or specialized software (e.g., IdentiKit). The use of these composite technologies is explored in the current symposium for its theoretical and applied implications. Topics will include (a) the development of alternative technologies that use `eigenfaces` and genetic algorithms to improve composite production; (b) alternative construction techniques and their influence on cross-race composite production; (c) decision criterion and its impact on composite production, and (d) the use of composite faces to improve subsequent identification performance. Finally, Professor Malpass will act as discussant for the symposium, raising important theoretical and applied issues in this domain.

### Parallel approaches to composite production: recognition rather than recall
*Peter Hancock*

Traditional approaches to the production of a facial likeness of a crimina suspect are very feature-based: "What did the nose look like?", "Are these the right eyes?", etc. Much psychological research indicates that people do not recognise faces in that way; we perceive the whole face rather than individual features. It is rather hard to describe someone`s face, and much easier (though still error-prone) to say whether or not you saw a given face. The question is how best to extract from someone`s memory what the face looked like. This research describes two new approaches to producing a facial likeness that draw on this recognition ability. EvoFIT is a completely new approach to the problem, using a principal components analysis of faces as the underlying representation. Eighteen randomly generated faces, matching the general description of the target, are generated and the witness selects several that look like the target. The system combines these in an evolutionary algorithm to create a new set for selection. The process continues, gradually getting closer to the target. The second approach is a parallel interface to PROfit, a standard feature-based composite system. However, rather than working serially through the selected set of noses, six at a time are presented for comparison. Counter to our intuitions, neither system works particularly well in practice, with EvoFIT only equal to current systems and the parallel PROfit slightly worse. We are currently investigating reasons for this outcome, one possibility being that users are simply confused by the number of faces that they are shown. These two systems will be discussed, along with possible reasons for the performance.

## Investigating the own-race bias in composite production

*Dawn McQuiston, Roy S. Malpass*

Empirical research has demonstrated that people are experts at recognizing own-race faces versus faces of another, less familiar race (Meissner & Brigham, 2001). This expertise has been shown to be associated with between-feature (configural) facial processing, while novices rely on more featural information (e.g., Diamond & Carey, 1986). How these theories of face processing extend to the recall of facial information is largely unknown. Interestingly, the configural-featural hypothesis would suggest a difference in the accuracy/quality of recalled information by novices versus experts, but in the opposite direction of what is observed with the own-race bias in face recognition. The purpose of this research was to investigate the role of perceptual expertise in face recall and improve our understanding of the configural-featural theory of face processing underlying the own-race bias. Participants were shown a target face for 60 sec. and then completed a distractor task for 5 min. Following instructional manipulations designed to encourage configural or featural processing, participants were asked to generate a facial composite of the target face using Faces 3.0. It was predicted that (1) composite quality would be better for those based on cross-race faces than own-race faces, and (2) instructional manipulations would affect composite quality. Results indicate a floor effect in terms of composite quality. The theoretical basis of these results will be discussed in terms of constrasting processes between recall and recognition. The limitations of composite production technologies and the implications of these results for law enforcement practices will also be discussed.

## The influence of instructional bias on the generation of facial composites

*Christina Sendina, Christian A. Meissner*

Previous research has demonstrated a verbal overshadowing effect in face identification -- the phenomenon that verbally describing a face later impairs identification of the face from a photo lineup (Schooler & Engstler-Schooler, 1990). Recent empirical research (MacLin, Tapscott, & Malpass, in press; Meissner, in press; Meissner, Brigham, & Kelley, 2001) and a meta-analytic review of previous studies (Meissner & Brigham, 2001) has indicated that "instructional bias" on the description task may be partly responsible for the overshadowing effects observed in eyewitness memory. Interestingly, the verbal overshadowing phenomenon has not been directly extended to the creation of facial composites, although an analysis across previous studies provided some evidence for verbal facilitation (Meissner & Brigham, 2001). The purpose of the present study was to assess the influence of verbally describing a face on the subsequent generation of a facial composite. Participants were shown a target face for 5 sec and subsequently completed a distractor task for 5 min. Participants were then asked either to describe the facial characteristics of the target, or to engage in a "no description" control condition by continuing with the distractor task. Instructional bias was manipulated in the description conditions as in previous studies by either heightening or lowering participants` criterion of recall on the description task. Following the description task, all participants were asked to generate a facial composite of the target face using Faces 3.0. It was predicted that the instructional bias manipulation would influence the quality of composites generated such that heightening participants` criterion on the description task would improve quality of the reproduction when compared with those participants whose output criterion was lowered, and results confirm this prediction. The theoretical basis of this effect will be discussed, and procedures for the collection of verbal descriptions from witnesses will be suggested.

## Optimizing facial composite hit-rates

*Graham Pike, Nicola Brace, Richard Kemp, Sally Kynan*

The current paper examines how best to present facial composites in order to maximize the chances of obtaining a positive identification. It has been standard practice in the UK to obtain just a single facial composite per investigation and to only release the image if the witness rated the likeness above a pre-set threshold. Several field studies, employing live staged crimes and trained police artists, were conducted to determine whether these procedures could be improved. Initial results revealed that witness ratings are not an accurate indicator of the quality of the composite. In addition, the presentation of multiple composites of the suspect led to a higher hit rate than presenting any one image, even the best likeness. This suggests that the people viewing the composites were able to make use of the variation between the different images in order to build a more accurate description of the suspect's face. Studies were also conducted which looked at what textual information should be included along with the facial image. These showed that the inclusion of information to do with the time and place of the crime improved hit-rate, but that the inclusion of a description of the suspect resulted in a lower hit-rate. One explanation of this is that verbal descriptions tend to be more inaccurate than the visual description contained in the facial composite image itself. The results of a final study revealed that constructing a facial composite does not seem to interfere with the witness' performance at an identification procedure

## Testing featural and holistic composite technologies under different methods of recall

*Bhavesh Prag & Colin Tredoux*

In previous presentations, we reported the development and testing of a holistic face composite system. The system (ID) uses 'eigentexture' and 'eigenshape' models to interactively construct likenesses of faces, and results thus far have been promising. In the present research we tested ID against a software program widely used by US and South African (SA) police (FACES), under three recall conditions: in view, a standard SA police interview, and a Cognitive Interview. One group of participants was exposed to one of four targets during a tutorial session, and required to reconstruct the faces from memory between one and two weeks later. A second group reconstructed the same faces with their photographs in full view. A third group of participants evaluated the composites in a range of tasks. Results suggest that the FACES program gives better reconstructions when the target is in full view, but that the ID program gives better reconstructions from memory.

**KCF7**
**SYMPOSIA 1:20 - 2:35 p.m.**
**Questioning children**
**Chairs: HELEN WESTCOTT, ROBYN HOLLIDAY**
**Contact: H.L.Westcott@open.ac.uk**
**Keywords: Eyewitness testimony, Interviewing children, Suggestibility.**

This symposium comprises four papers and a discussant exploring how best to elicit and understand information from children. Two experimental studies re-examine the misinformation effect. The first paper reviews children's difficulties in distinguishing between correct and incorrect responses to misleading and unbiased questions. The second paper queries to what extent compliance, rather than deception or secrecy, contributes to suggestibility effects. A third paper explores the content of children's verbal descriptions of unfamiliar faces in relation to constructing facial composites (e.g. E-fit). The final paper examines insights and issues associated with the application of different coding protocols to a sample of transcripts from suspected child sexual abuse interviews.

### Social and metacognitive processes in children's suggestibility: Is there evidence for a general overconfidence effect?
*Claudia Roebers, Pauline Howie*
Two studies, conducted in Australia and Germany, investigated metacognitive monitoring in children's event memory, as reflected in their ability to give higher confidence judgments after correct than after incorrect responses. Eight- and 10- year olds answered either unbiased or strongly misleading questions about a video they had viewed two weeks earlier, and rated their confidence that each answer was correct, on a 3-point scale. In Study 1, the format of all key questions was strongly misleading for half the children and unbiased for the remaining children, while in Study 2, each child received a mixture of misleading and unbiased questions. Both studies revealed developmental progression in the ability to appropriately differentiate confidence judgments. In Study 1, 8-year-olds who received predominantly unbiased questions performed relatively well when rating confidence, but predominantly misleading questions produced serious monitoring impairments, reflected in higher confidence after incorrect than correct responses. This pattern was present in both countries. Study 2 explored whether the overconfidence in Study 1 was attributable to social factors associated with "bombardment" with misleading questions. With misleading questions now interspersed among unbiased questions, the younger children no longer showed an overconfidence effect. However, the absence of a difference between their confidence in correct and incorrect responses to misleading questions, combined with an appropriate difference in unbiased questions, indicates that they were still experiencing difficulty differentiating adequately between correct and incorrect responses to misleading questions. The results are discussed in terms of social as well as metacognitive factors influencing children's eyewitness testimony.

### Re-examining the misinformation effect: Differentiating between secrecy, deception, suggestion and compliance in children
*Clare Wilson, Martine Powell*
The current study hypothesized that compliance and suggestibility would be positively correlated and both would be negatively correlated with deception and secrecy (that is, as the cognitive sophistication to lie and keep secrets develops, the willingness to agree with others decreases). It was further hypothesized a secret may be more resistant to suggestibility (as the child must mentally rehearse that the information is a secret and therefore have a stronger memory for that information). Two hundred children (aged 5 - 6 and 9-10) took part, in pairs, in a dance lesson. At the end of the lesson the instructor took the children`s photo and then asked the children not to tell "her boss" that she had used the camera and taken their photo (this was the secret). Immediately following the lesson, each child was asked to perform a deceptive task that was later rated. One week later the children were interviewed, either using highly suggestive questions followed by a multiple choice version of the same questions (either as the original test or modified tests outlined by McCloskey & Zaragoza, 1985) or a control test which contained multiple choice questions but no suggestive questions. The children were all finally given the opportunity to re-read each question and change any answer they thought was incorrect. Strong correlations were found as predicted. However, younger children did not show a stronger memory for the secret. There is a strong compliancy element to suggestibility and as children age they are more able to correct this compliancy tendency.

### Children's verbal descriptions of unfamiliar composite faces
*Carina Paine, Nicky Brace, Graham Pike, Helen Westcott*
When the identity of an offender is unknown in a criminal investigation, witnesses are often asked to produce a facial description or a composite image with a police operator. However, spontaneous facial descriptions tend to be limited. Therefore, operators may use some form of cued recall, or list of adjectives, for eliciting a description. The majority of these lists are based on research which has collated adults' terms for describing faces. Although research has shown that children have difficulty understanding the meaning of adults` words and may use their own terms, to date there is no equivalent list of children's terms. Thus operators must interpret and "translate" children's descriptions. The current study therefore aimed to: Investigate the content of children`s verbal descriptions of an unfamiliar face and; establish the language and terms used by children. The study also investigated the quantity of children`s verbal descriptions of an unfamiliar face and determined: the effect of prompting children in a featural and a configural way. Thirty 6-, 8-, and 10-year olds were each shown two facial composite images. Children were asked to provide a free narrative, followed by a prompted description for each composite image. Children were finally asked to compare the two composite images. The results will include information about which facial features children provided descriptions of; examples of the terms children used the effect of describing two faces; and the effect of prompting on children descriptions. Implications for future research and

practice developments in composite construction with children will be highlighted.

**Questioning coding: An analysis of different approaches to coding suspected child sexual abuse interviews**
*Clare Wilson, Helen Westcott, Sharon Casey, Sally Kynan*
Interview analysis is often conducted to find ways of improving the quality of investigation interviews. Three main types of interview analysis can be identified. First, Question Type Analysis focuses on the questions that result in the most accurate information. Second, Content Analysis focuses on the quality of the information asked for and obtained. It can further be split in two: semantic content analysis and lexical content analysis. Third, Story Narrative Analysis focuses on the overall quality of the statement obtained during the interview. How an interview is coded predicts what findings can be made, for example, in Question Type analysis it is commonly reported that open-ended questions are the most reliable. However, in Content Analysis, a passive voice open-ended question (eg "Tell me how you were touched by him") is less successful than the active voice (eg "Tell me how he touched you") in obtaining a complete account. The purpose of this study was to examine the different coding schemes and to integrate them, where possible, into the most helpful combination of factors that will allow the most complete and useful account of the complex dynamics of an interview. The present study coded the police transcripts of 20 interviews for suspected child sexual abuse. Each transcript was coded four ways using popular coding protocols for each of the four analysis types: Question type, Semantic Content, Lexical Content and Story Narrative. The results will discuss the usefulness of multiple analysis and associated issues and insights. The paper will review implications for both the coding of interviews and for the improvement of interviewing techniques.

**Discussant:** Robyn Holliday

**KCF8**
**PAPER SESSION 1:20 - 2:35 p.m.**
**Traumatic Memory**
**Chair: RHIANNON ELLIS**

**Consistency of memory for traumatic events**
*A. E. van Giezen, Ella Arensman, Philip Spinhoven*
Consistency of memory for traumatic events: A prospective and experimental study among victims of recent (i.e., within the last 2 months) physical or sexual assault, occurring outside the context of ongoing domestic violence.

**"I know exactly what I did on September 11": Retrieval-based and retrieval-independent criteria in judgments of memories for shocking events**
*Gerald Echterhoff*
Experiments conducted in Germany and in New York City investigated the criteria people use to judge how accurately they can remember their encounter with the September-11th news. An ease-of-retrieval heuristic was used only by participants in Germany six months later, when the public relevance of September 11th had declined.

**Altering traumatic memories**
*Daniel M. Bernstein, Veronika Nourkova, Elizabeth Loftus*
We falsely suggested to Russian participants that they had seen a wounded animal during one of two terrorist attacks (1999 Moscow or 2001 World Trade Center). While 12.5% of the Moscow group believed the suggestion, none of the WTC group did. These findings demonstrate the experimental malleability of traumatic memories.

**Korsakoff patients' memories of September 11, 2001**
*Ingrid Candel, Marco Jelicic, Harold Merckelbach, Arie Wester*
This study investigated whether Korsakoff patients are capable of remembering a highly emotional event and to what extent they form flashbulb memories of such an event. On two test occasions, Korsakoff patietns and healthy control participants were interviewed about their memories for September 11, 2001.

**Evidence of a specific impairment of inhibition for trauma-related material in patients with PTSD**
*Tim Brennen, Ragnhild Dybdahl, Jasminka Jukic, Almasa Kapidzic*
Patients with war-induced PTSD and a control group performed a directed forgetting task with positive, neutral and war-related words. The PTSD group recalled more to-be-forgotten war-related words, but fewer in every other condition, including to-be-remembered war-related words. This task provides a laboratory model of flashbacks experienced by PTSD patients.

**Auditorium**

**SYMPOSIA 3:55 - 5:10 p.m.**
**Forensic factors in facial composites**
**Chair: CHARLIE FROWD**
**Contact: cdf1@stir.ac.uk**
**Keywords: Face perception and identification, Face composites.**

This symposium connects research projects relevant to the construction of facial composites. The presentations focus on a range of factors likely to affect or predict composite quality. These broadly cluster into witness factors (cross race effect, verbal overshadowing and verbal description) and target factors (target delay, target salience and construction view).

## Investing the cross-race effect in facial composite construction
*Richard I Kemp, Jennifer S Baldwin*
It is easier to recognise same-race than other-race faces. This reliable finding is known as the cross race effect (CRE) and is usually demonstrated using a recognition memory paradigm. This paper reports the results of experiments designed to investigate the CRE using a facial composite construction task.
The cross-race effect (CRE) describes the finding that it is easier to recognise same-race than other-race faces. Recent meta-analytic reviews have shown this to be a reliable effect, and it is likely that the effect is a significant factor in a number of the false convictions recently uncovered by DNA analysis. Despite this high degree of theoretical and practical importance, the underlying causes of the CRE are not well understood. To date most studies of the CRE have employed a recognition-memory paradigm to measure recognition of same-race and other-race faces. However, some real forensic tasks require witnesses to recall a face. One such task is facial composite construction, where a witnesses works with an operator using a facial composite system to construct a facial likeness of a target. It is not clear whether tasks such as this will also show a CRE. This paper reports the results of experiments designed to determine if facial composite construction is prone to the CRE. Participants were "Asian" and "Caucasian" male and female students who watched a short video of an unfamiliar Asian or Caucasian face. These participant witnesses were then interviewed by a trained interviewer who worked with them using a computerised composite construction system (E-Fit) to construct a likeness of the target seen on video. These likenesses were then rated by a different group of Asian and Caucasian judges. Results show little evidence for a CRE in composite construction. Possible reasons for this finding and its practical and theoretical implications are discussed.

## Composites and the Verbal Overshadowing Effect
*Derek Carson*
A number of recent studies have demonstrated that when participants are asked to provide a verbal description of a previously seen face their subsequent recognition of that face can be hindered (Schooler & Engstler-Schooler, 1990; Finger & Pezdek, 1999). This phenomenon has been termed the verbal overshadowing effect. Not all attempts to replicate these studies have been successful and Meissner, Brigham and Kelley (2001) argue that the type of instruction given to participants determines the likelihood of finding the effect. When participants were instructed to lower their criterion levels and report everything, the effect was a strong one. Investigators when conducting cognitive interviews with witnesses currently utilise a similar type of instruction.
Experiment One adopts Finger and Pezdek's experimental design to investigate if verbal overshadowing can occur when witnesses are asked to construct facial composites from memory. Twenty participants were asked to construct E-fits from memory. Ten followed current police procedures: they described a previously seen face and immediately constructed the composite. Ten had a delay of 24 hours between the description phase and the construction phase. Subsequent tests have shown that composites constructed in the delay condition were more likely to be named than their non-delay counterparts. They were also more likely to be chosen in a 2AFC test when the task was to decide which composite was most visually similar to a recent photograph of the target face. A second experiment investigates whether the benefit shown for the composites in the delay condition is likely to be evidence of a release from verbal overshadowing.

## Multiple Technique Composites: the problem of facial salience
*Charlie Frowd*
Recent research has found that target distinctiveness exerts a strong influence on the identification of facial composites and appears to interact with the production technique employed. In this work, E-FIT and PROfit composites were better than artist-composites when salience was high, the reverse was found when salience was low. There is a significant body of research indicating the importance of facial salience in face perception. Recent work has suggested that composites of target faces previously-rated as distinctive are much better identified than composites of more average-looking faces. This notion appears to apply not only to a number of current UK composite systems (E-FIT, PROfit and Artist Sketches) but also outdated (Photofit) and developmental (EvoFIT) systems.
This research involved facial stimuli with a large difference in rated distinctiveness. A replication of the work has now been carried out with a less distinctive target set (and a more realistic delay to interview). Whereas E-FIT and PROfit composites were named about 20% on average, composites of the new target set were named at floor level. In contrast, the sketch artist's composites were consistently named for both sets (about 10%). Findings also highlight an advantage for the current systems over Photofit, and the new EvoFIT system over the other electronic variants. Overall, the work implies that knowledge of an assailant's distinctiveness is valuable for police work, enabling the selection of appropriate techniques and an estimate of composite quality.

## Composites at different views
*Hayley Ness*

Many modern composite systems only allow construction of a two-dimensional full-face image. However, a witness will have viewed a three-dimensional moving face. As research (e.g. Thomson and Tulving, 1970) has indicated that successful retrieval is dependent on how well retrieval cues correlate with those in the original encoded experience, it is possible that this two-dimensional image will not contain enough information to ensure successful recall. Similarly, research has shown an advantage for three-quarter views in unfamiliar face recognition (e.g. Krouse, 1981; Logie, Baddeley & Woodhead, 1987; Bruce, Valentine & Baddeley, 1987). These studies found that when three-quarter views were shown at presentation, recognition memory was superior at test, compared to full-face and profile views.

We are currently investigating the effectiveness of PROfit's new female database, developed by ABM UK, which allows participants to construct a composite at a three-quarter view. In our initial investigation we found that three-quarter view composites were identified as well as full-face images, but not better. However, participants were exposed to all views of the target face for equal amounts of time. The current experiment has attempted to examine the encoding specificity principle in more detail. Participants were asked to view a 30-second video clip, however this time the exposure phase was split into 3 conditions (three-quarter-view, full-face view or all views). Participants were asked to view one clip of one target. They were then asked to construct composites in both a three-quarter and full-face view. It is expected that identification performance will be superior when the view in the exposure and construction phase match.


## The effect of delay on facial composites
*Stephanie Plews*

UK working practices state that a witness description of an offender should be given within 24-36 hours. This study investigated whether there would be a significant difference in recognition between facial composites made 2 days or one week after viewing a target. Only images that were high scoring on a familiarity scale were used as targets and participants were screened so only those unfamiliar with the targets constructed composites. Naming rates suggest that there is no detriment for recognition of a composite between these two delay intervals.

This study was undertaken to assess the effects of witness' ability to successfully recall the facial appearance of, and produce a recognisable facial composite of, a target image of a white male. Six 'target' famous male images were selected and rated for familiarity and distinctiveness. Only images that were high scoring on a familiarity scale were used in the experiment. Participants were screened so that those who were unfamiliar with the 'target' images constructed composites using the standard cognitive interview technique employed by police officers. Half of the composites were constructed following a two-day delay and half after a week delay from viewing of the target. A further group of participants were asked to attempt to name the composites and likeness ratings were also collected as to the similarity between the target image and the resulting composite. The number of composites that were correctly recognised was low overall and preliminary results show no significant difference between a delay of two days and one week.


**KCF7**
**SYMPOSIA 3:55 - 5:10 p.m.**
**The role of social and emotional factors**
**on children's eyewitness testimony**
**Chair: LAUREN R. SHAPIRO**
**Contact: shapirol@emporia.edu**
**Keywords: Cognitive development, Eyewitness testimony.**


Researchers have shown that testimony by child witnesses is affected by social pressure, interrogation techniques, and emotionality of the event. False information presented before or after the witnessed event is incorporated into reports. Consequently, even when children are the only witnesses, they are rarely asked to testify in criminal proceedings. The first presentation examines the extent to which peer conversations can affect children`s memories for earlier experienced events. The second presentation explores how the combination of pre-event character stereotyping and postevent suggestions influenced recall accuracy over time. The third presentation focuses on whether emotionally negative events are recalled better than neutral events over time.


## Making memories: How peer conversations can lead to false reports
*Gabrielle F. Principe, Tomoe Kanaya, Stephen J. Ceci*

The literature on children's memory demonstrates that suggestive interviews can lead to false reports. In response to these findings, researchers have constructed forensic interviewing guidelines to minimize errors resulting from inappropriate questioning. The use of nonsuggestive techniques, however, may not eliminate all concerns about accuracy because the source of suggestions may emanate outside of the interview context. One source that has not been studied systematically is peer interactions. To explore these issues, two studies with preschoolers were conducted. The first examined whether naturally occurring conversations among peer witnesses and non-witnesses might lead non-witnesses to make false reports. Results showed that peer exposure substantially elevated non-witnesses' claims of activities witnessed only by their peers. Further, false claims of actually seeing versus merely hearing about the non-witnessed activities were elevated following opportunities to discuss these activities with peers. The second study explored the degree to which an erroneous rumor overhead by some members of a peer group might spread to others. Results revealed that the children accepted and spontaneously shared the unfounded rumor with peers. Further, both groups of

children were equally likely to report the rumor as fact, demonstrating that children will relay rumors to peers and accept rumors from peers. Also, these two groups of children were more likely than a third group, who were not exposed to the rumor, to state that they actually saw the details of the rumor occur, as opposed to merely hearing about them from someone. These findings indicate that peer conversations are capable of contaminating not only children's reports, but also their underlying beliefs about what happened.

## Are young children's memory reports about a stranger distorted by positive as well as negative stereotypes?

*Amina Memon, Robyn Holliday, Carole Hill*

Young children are especially vulnerable when being questioned as witnesses. The current study is the first in a series of studies to explore effects of misinformation encountered prior to an event rather than post event. The studies examine the effects of stereotype induction. This is a subtle but potentially powerful method of communicating a characterisation of a person or situation. Four and five-year olds were presented with a positive or negative stereotype about a stranger (Sam) before he visited their school. The stereotypes were presented in the form of a picture book story about Sam by the class teacher prior to Sam's visit. In the negative version, Sam was presented as a clumsy person and in the positive version he was presented as a helpful person. Some children heard a neutral (no stereotype) version of the story. The children were subsequently interviewed using neutral and suggestive questions that were consistent with the positive and negative stereotype. Each child was interviewed twice, one week and 6 weeks after they met Sam to examine the effects of delay on memory accuracy. Analysis of the initial interviews indicates that most of the children were resistant to any form of suggestion (positive or negative). Data collection for the second phase is currently underway. In addition to its applied relevance, the research aims to elucidate theoretical mechanisms contributing to false reports in young children. The role of individual differences and the contribution of intentional (conscious) and automatic (unconscious) memory processes to children's suggestible responses will be discussed.

## A trip to the park: The role of emotion in children's recall

*Lauren R. Shapiro, Corey L. Palmer*

Clinicians who work with child victims and lawyers who prosecute or defend criminals need to understand how emotional negative events are recalled and reported by children. Current reviews have indicated a mixed pattern of results such that errors in event recall have been observed in the same types of emotional situations where high rates of accuracy have been reported. This study compared children's recall for emotionally negative and neutral stories that contained a problem-resolution structure. Sixty children ages 4 to 5 and 7 to 8 watched a videotape of a child going to a park to play with his/her dog. In the emotionally negative story, the dog ran off and was lost. The child went home and made 'lost dog' signs. In the emotionally neutral story, the dog knocked over the picnic lunch and the child replaced it by purchasing a hot dog. Each child was interviewed twice, immediately and one week after watching the videotape. Emotional assessments of the child (e.g., happy, neutral, sad) were made prior to and subsequent to the videotape and the child's understanding of the protagonist's emotional reaction to the event was also assessed. Parents completed information about the child's temperament. In addition to age differences, findings will be discussed in terms of accuracy and amount of recall with special attention given to the roles of emotional valence (negative vs. neutral) and time delay. The relationship of children's temperament and ability to understand the protagonist's emotional state with recall will also be addressed.

**Discussant:** *Peter Ornstein*

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**KCF8**
**PAPER SESSION 3:55 - 5:10 p.m.**
**Communication I**
**Chair: LORRAINE HOPE**

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## Context-dependency in the real world: How different retrieval cues affect event-specific knowledge in recollections of a real-life event

*Elise van den Hoven, Berry Eggen, Ineke Wessel*

We studied how different cue-types facilitate autobiographical recall. Participants joined in a standardized real-life event. Recall testing used one of five cue-types. Scoring units of Event Specific Knowledge employed an especially developed method. Results suggest that relative to a no-cue control condition, cueing has mixed effects on eliciting ESKs.

## The formation of collective memory through conversation

*William Hirst, Alexandru Cuc, David Manier, Yasuhiro Ozuru*

The processes underlying the formation of a collective memory was explored by asking families to remember stories first individually, then either as a group or individually, and then again individually. The formation of the collective memory and its content depended on whether one family member dominated the group recounting.

## The development of the ability to combine autobiographical memories into a coherent life story

*Cybèle de Silveira*

We investigate the development of global coherence of life narratives in a cross-sectional study (8-, 12-,16-, 20-year olds, each 24 subjects). Life

narratives are elicited again after a training phase to maximize performance and test lower age-boundaries. Measures of intelligence and possible dispositional and motivational correlates are included.

**Causal and temporal coherence in life narratives of clinically depressed in-patients and matched controls**
*Tilmann Habermas, Lisa Ott, Merve Schubert, Beatrix Schneider*
In a study of recounted life narratives of 18 matched pairs of clinically depressed and controls spontaneous explanatory activity and indicators of a sense of biographical time were coded. Depressed showed a comparable number of explanations, which conformed more to a depressive explanatory style and contributed more to global coherence.

**Sunk cost effects in social judgements. A test of the self-justification hypothesis**
*Martin Coleman*
Both "sunk cost' and "escalation of commitment" effects have been identified in empirical studies. A self-justification motive is believed to lie behind both phenomenon. To test this in a social situation an independent samples study was conducted. (IV- sunk cost, DV(1)-rating of a attractiveness, DV(2)-likelihood of continuing with date). Initial results suggest an impact of sunk cost on social judgements (the first such finding).

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**Auditorium**
**KEYNOTE**
**5:15 - 6 p.m.**
**Do many heads make sights work?: Improving systems to build facial images from eyewitness memories.**
**VICKI BRUCE**
**Chair: Amina Memon**

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# FRIDAY, JULY 4TH

**Auditorium**
**SYMPOSIA 8:45 - 10:00 a.m.**
**Cross-race effect in memory for faces: Developmental, theoretical and applied implications**
**Chair: CHRISTIAN A. MEISSNER**
**Contact: meissner@fiu.edu**
**Keywords: Eyewitness testimony, Face perception and identification.**

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Own-race faces are better remembered when compared with performance on faces of another, less familiar race. This cross-race effect in memory for faces is explored in the current symposium for its developmental, theoretical, and applied implications. Topics will include: (a) children's performance in both recognition and classification paradigms; (b) the use of eye-tracking and verbal protocol methodologies to explore underlying cognitive processes; and (c) lineup presentation factors (such as sequential presentation and "without replacement" paradigms) and their influence on the identification of own- and other-race faces. Finally, Professor Valentine will act as discussant for the symposium, and will share some of his recent theoretical and applied research in the cross-race domain.

**Children's face recognition memory: More evidence for the cross-race effect**
*Kathy Pezdek, Iris Blandon-Gitlin*
It is well established that own-race faces are recognized more accurately than cross-race faces. However, there are mixed results regarding the developmental consistency of the cross-race effect. White and Black kindergarten children, third graders and young adults participated. In the presentation phase, participants viewed a two and a half minute videotape of an interaction between one Caucasian man and one African-American man. One day later recognition memory for each target was tested with a target-present videotaped six-person lineup. The interaction of race of participant by race of target face on Ag scores was significant, demonstrating an overall cross-race effect, $F(1,180) = 14.98$, $p < .001$. White participants were more accurate recognizing the White target face ($M = .74$, $SD = .29$) than the Black target face ($M = .68$, $SD = .30$), and Black participants were more accurate recognizing the Black target face ($M = .81$, $SD = .24$) than the White target face ($M = .66$, $SD = .28$). More important, this effect did not vary across age groups; the age x race of participant x race of target face interaction did not approach significance, $F < 1.00$. For each age group, own-race identification was more accurate than cross-race identification. The only other significant effect in this analysis was the main effect of age, $F(2,180) = 13.65$, $p < .001$. As expected, recognition accuracy was highest for the adults ($M = .80$, $SD = .28$), next highest for the third graders ($M = .77$, $SD = .25$) and lowest for the kindergarten children ($M = .62$, $SD = .29$). The age consistency of the cross-race effect in light of the significant main effect of age, suggests quantitative but not qualitative differences in face memory processing at various ages. Expert witnesses on eyewitness identification should be confident testifying that for children as well as adults, own-race faces are recognized more accurately than cross-race faces.

## Classification of out-group faces: Testing rival theoretical models
*Siegfried L. Sporer, Barbara Trinkl, Elena Guberova*

Numerous studies as well as a recent meta-analysis have demonstrated an out-group processing deficit for faces of other ethnic groups. But there is still controversy about theoretical explanations of this effect. Most studies have employed participants and faces of Blacks, Asians and Whites but relatively little is known about this effect in Europe. In this experiment, various rival predictions from norm-based and exemplar-based coding models (which assume faces to be presented in a multi-dimensional face space) and from an integrative in-group/out-group model of face processing (Sporer, 2001) were examined with 128 Turkish children (living in Vienna) and 128 Austrian children. Children were required to classify faces as belonging to the respective in- or out-group. Dependent measures were classification times. As predicted from the in-group/out-group model there was an interaction between ethnicity of participants and ethnicity of faces: Both Turkish and German participants took longer in classifying the respective in-group compared to out-group faces. Additional analyses with respect to facial distinctiveness as rated by members of the two ethnic groups will be presented. The discussion centers around the question to what extent these and other data may help to differentiate between rival models.

## Perceptual-memory skill and the cross-race effect: Evidence from eye-tracking and verbal reports
*Christian A. Meissner, John C. Brigham, Brooke Bennett*

Own-race faces are better remembered when compared with performance on faces of another, less familiar race (Meissner & Brigham, 2001). It was proposed that this "cross-race effect" in memory results from differences in perceptual-memory skill, and that several cognitive aspects of skilled performance can be demonstrated. Black and White participants were asked to study and subsequently recognize own- and other-race faces. Half of the participants in each race were asked to provide verbal reports of their thoughts (Ericsson & Simon, 1992) as they recognized faces, while the eye-fixations of other subjects were recorded at both encoding and test. A cross-race effect in memory performance was observed across all participants. Analysis of eye-fixation data indicated that own-race faces were encoded with greater speed and distance between successive fixations, and greater area of coverage for different facial regions. Eye-fixations and reaction times at test also demonstrated greater cognitive efficiency when responding to own-race faces, and qualitative analyses showed a greater quantity of features encoded for own-race faces. The "false recollection" of other-race faces observed by Meissner and Brigham (2002) was also confirmed in the verbal reports of participants. Finally, prior interracial contact was found to moderate the encoding-based eye-fixation effects. It is proposed that these results support the role of skilled perceptual-memory in the cross-race effect, and the applied implications of these findings will be discussed.

## Cross-race identification from simultaneous and sequential lineups
*R. C. L. Lindsay, John C. Brigham, Roy S. Malpass, David F. Ross*

There are many studies examining cross-race facial recognition. In general, these studies reveal that people are much more likely to mistakenly choose other-race than same-race individuals. Sequential lineups have been shown to lead to dramatically lower rates of false positive identification from lineups than the traditional simultaneous lineups (Lindsay & Wells, 1985; Steblay, Dysart, Fulero, & Lindsay, 2001). An obvious question is whether sequential lineup presentation can successfully reduce the higher false positive choice rate associated with cross-race facial recognition. Three experiments are reported that manipulated race of criminal, race of witness, simultaneous versus sequential lineup presentation, and presence versus absence of the criminal. The studies used participants and confederates of African versus European, Asian versus European, and Hispanic versus European ancestry with approximately 500 participants per study. The results reveal two important findings: 1. sequential lineups do not eliminate the cross-race effect and 2. the pattern of cross-race results differs with the groups studied.

## Evaluating relative vs. absolute judgments when identifying members of another race
*Otto H. MacLin, Laura A. Zimmerman*

Research has argued that sequential lineups reduce false identifications compared to simultaneous lineups, because witnesses given simultaneous lineups will compare the lineup members choosing the photo most resembling the culprit relative to the other lineup members. However, with sequential lineups, witnesses make absolute judgments comparing each photo separately to their memory of the culprit. This assumption has previously been examined by administering self-report questionnaires and by using the 'Without Replacement' paradigm (WoR). Using WoR, participants are presented with either 6 member target-present lineups or 5 member target-removed lineups. It has been demonstrated that the foil chosen most often in the target-present lineup will be chosen more often in the target-removed lineup as witnesses shift their choice towards to the lineup member now most resembling the witnesses' memory of the culprit. This shift is said to be a relative judgment. The research presented here examines lineup decisions using WoR. When white participants were presented with lineups consisting of Hispanic males, the relative shift was observed as participants in the target-removed condition divided their choice on lineup members receiving higher proportions of false identification in the target-present condition. There was no significant increase in lineup rejections. However, relative shift was not observed when participants were presented with same-race lineups, instead the lineups were rejected. When same-race lineups were modified to contain foils closely resembling the culprit, correct rejections decreased in the target-removed lineup. Data from self-report questionnaires will also be presented and cautions regarding the construction of other-race lineups will be discussed.

**Discussant:** *Tim Valentine*

**KCF7**
**SYMPOSIA 8:45 - 10:00 a.m.**
**Metacognitive issues in memory and testimony**
**Chairs: HELEN WESTCOTT, CLARE WILSON**
**Contact: H.L.Westcott@open.ac.uk**
**Keywords: Eyewitness testimony, False memories, Source monitoring.**

This symposium comprises five papers which have used experimental and quasi-experimental methods to examine mega-cognitive issues which can impact upon witness memory and testimony. Two papers examine the relationship of source monitoring abilities to other cognitive factors, namely stereotyping (in adults) and theory-of-mind and intellectual maturity (in children). A third paper evaluates the successfulness of an intervention to increase children`s monitoring of their interview responses. Two remaining papers look at false-memory issues in children. One examines the influence of gist-cuing and repetition on recall and recognition using DRM lists, while the final paper explores children`s ability to edit false memories about an experienced event

### Getting to the source of stereotype biases: Cognitive load, stereotype activation and source monitoring
*Tony Bertoia*
Recent studies have demonstrated that when individuals are placed in cognitively demanding conditions, they rely more on their stereotypes to attribute memories to their source. The current research investigated whether stereotyping operates more strongly at encoding or retrieval by manipulating cognitive load and stereotype activation.

### How sure am I about that? The effects of prompting young children to monitor their certainty
*Pauline Howie*
This study examined the early development of children's ability to appropriately assess their certainty about their recall of details of past events. It also sought to determine whether prompting young children to monitor their certainty increased their tendency to say "I don't know" rather than guess inappropriately, thereby improving their accuracy. Preschool children (4 - 5 years) and Grade 2 children (7 - 8 years) viewed a video and were individually questioned about it a week later. For half the children, 10 target details which were salient but not crucial to the video narrative, were omitted from the video. For these children, the recall questions about these target details were unanswerable, while for the remaining children they were in principle answerable. Half the target questions were misleading in format, and half were unbiased. Children rated their confidence in each answer on a 5-point visual analogue scale, either immediately after answering each recall question (concurrent condition) or after all recall questions had been asked (post condition). Comparison of confidence ratings to correct and incorrect answers revealed the expected age progression in metacognitive monitoring, and evidence of greater impairment of monitoring for misleading than for unbiased questions. Concurrent prompting of children to monitor their confidence influenced the accuracy of their responses to recall questions and their ability to give appropriate "don't know" responses. Implications for understanding early metacognitive development, as well as for investigative interviewing with young children, are discussed.

### Cognitive predictors of source-monitoring accuracy in preschool children
*Ruth Ford*
4-year-olds watched as two hand puppets told them a simple story and displayed pictures of events mentioned in the story. They then listened to an audiotape of the same story that included additional events not mentioned by the puppets. They were later asked to judge, first, whether particular events occurred in the story, and second, whether these events were described by the puppets or by the voice on the audiotape. Children also completed tests of receptive vocabulary, inhibitory control, and theory of mind. Both recognition-memory and source-monitoring accuracy were superior to chance. Whereas children's ability to discriminate between true and false events was predicted by measures of inhibitory control, their success at judging the origins of remembered events depended more on their theory-of-mind skills, particularly their understanding of false belief. Results are discussed in relation to the development of source monitoring capabilities.

### Gist cuing increases and repetition decreases the false-memory illusion in children
*Robyn Holliday, Charles Brainerd*
This study investigated the effects of gist cuing and repetition on recall and recognition of critical distractors (e.g., sleep) using the DRM paradigm. Nine-year-old children heard six lists of words that are each associates of a critical (unpresented) distractor. Three lists were presented once, three lists thrice. Half the children were given gist cuing instructions prior to presentation of each list. Children recalled each list after it was presented. A final recognition test was given for presented words (targets), critical distractors, unpresented words related to the list words, and unpresented words (unrelated distractors).
Children were found to be susceptible to the false memory illusion under both free recall and recognition test conditions. Children were more likely to recall critical distractors when cued for gist (M = .20) than when not cued for gist (M = .11). On a recognition test children were more likely say they remembered critical distractors when cued for gist (M = .74) than when not cued for gist (M = .58). Repetition of DRM lists was found to have the opposite effect on recall of critical distractors. Children were less likely to recall critical distractors when they had heard the list three times (M = .11) than when they had heard the lists once (M = .20).

### Children's ability to edit their memories
*Tammy Marche*

A recently developed model of memory editing was used to gain understanding of the memory processes involved in the recall of a potentially distressing event. Children (X=11.05 years, SD=1.79) attending a camp for children with diabetes were observed during a specific blood glucose and injection experience. They were asked about positive and negative event details and were instructed to either report only details that actually happened, only details that could have happened but did not, or both. Performance was compared across the conditions to assess the ability to edit inaccurate information from memory. The level of distress and pain reported for the event, as well as anticipated pain and anxiety for the next injection experience, were low, and did not consistently influence memory editing. False memories were reported for both positive and negative event details, but more so for positive details. Preliminary analysis indicated that both older children and children who had diabetes for longer were better at editing negative false items. Both children with lower blood sugar and children who had been more recently diagnosed with diabetes had a more difficult time editing positive false memories. The ability to edit false information from one's memory appears to be affected by characteristics associated with diabetes. Understanding the factors that affect bias and distortion in memory may help with interventions that aim to alleviate distress for medical procedures.

**KCF8**
**PAPER SESSION 8:45 - 10:00 a.m.**
**Perceptual-motor processes**
**Chair: ROY ALLEN**

### Eye tracking in the world of consumer perception
*Andrew Stewart, Jane Ryland, Clarissa Hughes, Kevin Purdy, Gale Alastair, Brian Newby*

We report two studies demonstrating the value of eye tracking in the world of consumer perception. Eye movements of consumers were monitored as they were engaged in tasks of rating stimuli. We found that certain areas of the stimuli played larger roles than other areas in attracting and holding attention.

### Expertise effects in multiple-target tracking
*Roy Allen, Peter McGeorge, David Pearson*

An experiment is reported in which experts and novices were required to track multiple-targets under dual-task conditions. The pattern of attention shown by experts differed from that of novices. This may have implications for the selection of air traffic controllers and the subsequent monitoring of their training.

### Acquiring information from simple weather maps: Domain-specific knowledge and general spatial abilities
*Gary L. Allen, Christy R. Miller, Helen Power*

Individual differences in weather map comprehension were examined in two studies. Weather-related knowledge, geographic familiarity, and visual-spatial abilities (specifically, flexibility of closure, speed of closure, and spatial scanning) were found to influence performance under certain circumstances. Results suggest interplay between domain-specific knowledge and specific visual-spatial abilities in weather map comprehension.

### Adult age and individual differences in the development of skill: Do visual search, memory search, and lexical decision share similar abilities-skill relationships?
*M. Kathryn Bleckley, Christopher Hertzog, Arthur D. Fisk*

The relationships between abilities and performance in memory search and visual search have be examined separately suggesting differences between O and Y in skilled visual search but not skilled memory search. In a study where older adults and younger adults performed memory and visual search as well as lexical decision tasks, we tested models predicting skill acquisition from cognitive abilities.

### Using eye tracking as a reading time measure to determine the acceptability of brand extensions
*Andrew Stewart, Patrick Sturt, Martin Pickering*

We report a study using eye tracking as a way of measuring how consumers read sentences containing brand extensions. We find that by examining the eye movements (regression path analysis and leftward regressions from the end of a sentence) associated with reading a brand extension, we can determine how easy (or how difficult) it is for a consumer to mentally extend that brand.

**Auditorium**
**SYMPOSIA 10:20 - 11:35 a.m.**
**Verbal Overshadowing**
**Chairs: CHARITY BROWN, TOBY J. LLOYD-JONES**
**Contact: C.Brown@kent.ac.uk**

**Keywords: Earwitness testimony, Eyewitness testimony, Face perception and identification.**

Verbal overshadowing is the phenomenon that verbally describing a stimulus can interfere with subsequent recognition of that same stimulus or another stimulus. This symposium will extend the theoretical understanding of this phenomenon, and assess the applied implications of verbal overshadowing for the collection of verbal descriptions from witnesses. Three papers present new data on; 1)verbal overshadowing of voice recognition; 2) the robustness of the phenomenon; 3) the importance of description instructions; and 4) the role of spontaneous verbal encoding. A final paper reviews the theoretical basis of verbal overshadowing in light of recent findings and developments in verbal overshadowing research.

## The influence of instructional bias on earwitness memory
*Marianna Carlucci, Christian A. Meissner*
Previous research has demonstrated a verbal overshadowing effect in face identification -- the phenomenon that verbally describing a face later impairs identification of the face from a photo lineup (Schooler & Engstler-Schooler, 1990). Recent empirical research (MacLin, Tapscott, & Malpass, in press; Meissner, in press; Meissner, Brigham, & Kelley, 2001) and a meta-analytic review of previous studies (Meissner & Brigham, 2001) has indicated that "instructional bias" on the description task may be partly responsible for the overshadowing effects observed in eyewitness memory. Interestingly, the verbal overshadowing phenomenon has only recently been extended to the identification of human voices, or earwitness memory (Perfect, Hunt, & Harris, in press). The purpose of the present study was to assess the influence of verbally describing a face or a voice on later perceptual identification of both the face and voice of the target. Participants were shown a short video clip involving a petty theft, and were subsequently administered a distractor task for 5 min. Immediately after this, participants were asked to describe either the voice or facial characteristics of the perpetrator, or to engage in a "no description" control condition by continuing with the distractor task. Instructional bias was manipulated in the description conditions as in previous studies by either heightening or lowering participants` criterion of recall on the description task. Following the description task, all participants were asked to identify both the voice and face of the male target from separate target-present lineup arrays (with order counterbalanced across participants). Results supported predictions that instructional bias influenced performance on subsequent lineup identification; however, these effects were isolated to the particular aspect of the target that was described (i.e, the face or the voice). The theoretical basis of the effects of instructional bias will be discussed, and procedures for the collection of verbal descriptions from witnesses will be suggested.

## The presence or absence of the verbal overshadowing effect in face and voice identification by children and adults
*Brian Clifford*
The Verbal Overshadowing Effect (VOE) can be construed as a fairly fragile effect in the sense of several studies failing to find the effect and other studies indicating its presence or absence under delay conditions. If the effect was robust then it would have serious implications for how police personnel should interact with witnesses and victims. A total of 240 participants (120 children and 120 adults) watched a staged event mediated through video and then engaged in an immediate and a 1-week delayed identification of both the target person`s face and voice. The face and voice lineups were either target-present or target-absent. Having viewed the video,and before attempting the identification tasks, participants either described the target`s face featurally or configurally, or the target`s voice featurally or configurally, or engaged in a non-description (control) task. These five conditions allowed for several control conditions against which to test for the presence of a VOE in both face and voice identification. The results were not as predicted by the VOE: and adults and children differed in their profiles. Loglinear analysis was used to establish the reliability of the findings. The data suggest that the drastic recommendations that would have to be communicated to the police if the VOE was found to be present, robust and of psychological significance, should not be issued yet. Possible theoretical explanations of the current results are presented.

## Spontaneous verbal encoding of unfamiliar faces: Implications for accounts of the verbal overshadowing effect
*Lee H. V. Wickham, Karen Lander*
A central premise in accounts of the verbal overshadowing effect (Schooler & Engstler-Schooler, 1990) is that faces are very difficult to verbalise. Similarly, models of face recognition (e.g. Burton, Bruce & Johnston, 1990) emphasise the physical code derived from the face, rather than any verbal or semantic code. We will present a series of experiments that suggest that spontaneous verbal or semantic coding of faces plays a larger role in unfamiliar face recognition than previously thought. Participants in our experiments engaged in articulatory suppression to reduce the degree of spontaneous verbal rehearsal during the presentation phase of a standard verbal overshadowing paradigm. Across a number of experimental conditions, verbal overshadowing was observed for the control group, but not for the group who engaged in articulatory suppression. The results of the experiments will be discussed in relation to current explanations of the verbal overshadowing effect and models of face recognition.

## Verbalization produces a transfer inappropriate processing shift
*Jonathan Schooler*
This talk will review various lines of research indicating that verbal overshadowing involves a general processing shift that interferes with the application of non-verbal operations. Multiple sources of evidence for a processing shift are reviewed, including: 1)verbalization quality often does not correspond to recognition performance; 2) describing one stimulus can interfere with memory for a different stimulus; 3) admonitions to ignore verbal descriptions do not reverse and sometimes even exacerbate verbal overshadowing, 4) engaging in featural processing tasks impairs

recognition in a manner comparable to verbalization; and 5) engaging in non-verbal tasks can reverse the negative effects of verbalization. In light of this evidence, it is suggested that verbalization produces a "transfer inappropriate processing shift" whereby the cognitive operations engaged in during verbalization dampen the activation of brain regions associated with critical non-verbal operations. This account of verbal overshadowing is then used to explain both the generality and fragility of the verbal overshadowing effect.

**Discussant:** *J. Don Read*

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**KCF7**
**SYMPOSIA 10:20 - 11:35 a.m.**
**Interviewer feedback effects on the**
**metacognitive judgements of eyewitnesses**
**Chair: AMINA MEMON**
**Contact: amemon@abdn.ac.uk**
**Keywords: Eyewitness testimony, General memory, Metacognition.**

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Eyewitnesses often comment on the difficulty of recognising a previously seen face and yet it is easy to inflate their confidence and alter their beliefs about the accuracy of their memory with confirmatory feedback. This symposium presents 4 papers that focus on the effects of feedback on meta-cognitive assessments of memory. The first compares children and adults and reports effects of both confirmatory and disconfirmatory feedback. The second compares seniors and young adults. The third paper examines the effects of post-identification feedback on people's memory and willingness to respond to cued recall questions (including some impossible questions). The final paper examines the post-identification feedback effect using the sequential lineup (presenting one face at a time) as well as simultaneous procedures (confirming feedback distorts recollection with both procedures).

**The effect of post-identification feedback on child witnesses' confidence and memory judgments**
*Gertrud Hafstad, Amina Memon, Robert Logie*
Eyewitness confidence and detailed memory reports are often considered reliable indicators of the credibility of the eyewitness testimony. This study was an extension of a design developed for adult witnesses by Wells and Bradfield (1998), and investigated how feedback concerning the accuracy of a lineup identification influences children's confidence in their testimony and memory reports of other judgements relevant to the testimony. Fifty-seven children (11-12 year olds) and 55 adults (17-39 year olds) were presented with a photo identification lineup which they were led to believe contained the perpetrator seen in a video footage of a staged crime. The lineup was a perpetrator absent lineup and all witnesses made a false identification. Participants then received confirming feedback (they were told they had picked the right person) disconfirming feedback (they were told they had picked the wrong person and that it was one of the other faces) or no feedback related to the accuracy of the identification. Both confirming and disconfirming feedback influenced participants' confidence and reports of other testimony-relevant memories and the children were more influenced by feedback than adults. For example with confirming feedback, witnesses reported a clearer image of the perpetrator's face and a greater willingness to testify in court. The participants were not consciously aware that the feedback influenced their memory reports. The findings imply that confidence and memory reports are easily distorted by unspecific feedback and caution should be taken to this point especially when vulnerable witnesses, like children, are interviewed.

**The effects of post-identification feedback on the confidence and memory judgements of young adults and seniors**
*Amina Memon, Susan Dixon and Lynn Hulse, James Bartlett*
Eyewitness testimony reports about their memory and confidence are often considered to be reliable indicators of their credibility and accuracy. Yet recent research has shown that inaccurate post-identification feedback from a lineup administrator can influence eyewitness reports about their confidence and the characteristics of their memory for an event (Wells and Bradfield, 1998). Research conducted in our laboratories in Aberdeen and Dallas suggest that seniors or older adults fare worse in eyewitness identification situations where they are more prone to false identifications (e.g. Searcy, Bartlett & Memon, 1999). However, we rarely find age differences in confidence judgements or in self reported beliefs about memory ability. If mere feedback from an interviewer did alter people's confidence and beliefs about their memories then consequences could be more serious for seniors. In the current study, 30 young adults (17-32 years) and 32 seniors (60-80 years) viewed a short video clip of a building society robbery and then falsely identified the robber from a target-absent photospread. Participants then received confirming feedback (they were told they had picked the right person) disconfirming feedback (they were told they had picked the wrong person and that it was one of the other faces) or no feedback related to the accuracy of the identification. The data analysis will examine how feedback (confirming and disconfirming) following the erroneous identification differentially affects the confidence and memory judgements of young and older witnesses. The practical and theoretical implications of the results will be discussed

**The effects of post-identification feedback on recall of crime and perpetrator details**
*Susan Dixon, Amina Memon*
Eyewitness testimony remains a prominent element within judicial proceedings despite findings that such evidence is highly susceptible to distortion from numerous sources. One area of research concerns post-identification feedback from a lineup administrator, which has been found

to influence eyewitness confidence and other memorial judgements including view of the culprit, ease of identification and willingness to testify (Wells and Bradfield, 1998). The present study extends this area of research by examining whether post-identification feedback influences the quantity and accuracy of crime event details recalled, willingness to attempt misleading questions regarding the event and confidence for these details. Participants viewed a short video clip of a building society robbery and then falsely identified the robber from a target-absent photospread. Eyewitnesses were randomly allocated to a confirming (witness told they got the right person) disconfirming (witness told they picked the wrong person) or no feedback condition. Each eyewitness then attempted to answer a series of short-answer questions regarding different aspects of the crime event including details about the robber, accomplice, victim, crime scene, theft and getaway. The feedback manipulation significantly influenced eyewitness confidence in their recall of crime event details. Interestingly, this effect was not reflected in the overall quantity and accuracy of detail recalled or willingness to attempt misleading questions, in which there were no significant differences. The results suggest that the feedback effect exerts strongest influence on eyewitness confidence but does not extend to the ability of an eyewitness to recall specific details about the crime event.

### The effect of post-identification feedback in simultaneous versus sequential lineup procedures
*Amy Bradfield*
Post-identification feedback dramatically distorts eyewitnesses' retrospective reports of their witnessed experience. For example, confirming feedback (e.g., "You identified the actual suspect.") inflates witnesses' reports of how confident they were at the time of their identification, how good their view was, and how easy it was to make an identification, among other testimony-relevant variables (Wells & Bradfield, 1998). Post-identification studies thus far have used simultaneous lineup procedures in which all suspects are shown to a witness at the same time. Presenting photographs sequentially is a superior method of obtaining an identification because it reduces the number of false identifications from target-absent lineups but does not reduce the number of accurate identifications from target-present lineups (e.g., Lindsay & Wells, 1985). In this experiment, participants were shown an event and then surprised with an identification task. Participants were randomly assigned to see suspects' photos in a simultaneous or sequential target-absent photospread. Of the participants who were shown a simultaneous photospread, nearly all made an identification. Of those participants shown a sequential photospread, about half made an identification. The others correctly rejected the target-absent lineup. Then, participants were randomly assigned to hear confirming feedback or no feedback (control). Analyses were conducted to measure the interaction of feedback and photospread type on testimony-relevant reports as well as the effect of confirming feedback on the relation between confidence and accuracy for participants shown a sequential lineup. Results indicate that confirming feedback powerfully distorts retrospective judgments related to eyewitness identification testimony in both photospread procedures.

**Discussant:** *Tim Valentine*

## KCF8
## PAPER SESSION 10:20 - 11:35 a.m.
## Learning/Development
## Chair: DAN WRIGHT

### Questioning statistics: How people learn statistics
*Dan Wright, Sian Williams*
Psychologist are required to learn statistics at the postgraduate level, but often it is not learned well. We collected much data, including recording all questions asked during computing workshops, to try to understand how people learn statistics at this level.

### A microgenetic study investigating the relationship between inhibitory control and theory of mind
*Emma Flynn*
Forty-two children (aged 37 months to 51 months) were tested on nine theory of mind tasks and four inhibition tasks, to establish the sequence of development of these skills. The experimental group were tested six times; each testing session was four weeks apart. The results support theories which suggest that children have good inhibitory control before they develop a theory of mind.

### Intentional forgetting in the think-no think paradigm: An ERP study
*Rhiannon Ellis, Lesley Hart, Jonathan Schooler*
While there is research on how people forget, it is not entirely clear what is happening when people attempt forgetting. In the Think - No Think paradigm, subjects learn to suppress associations between cues and information. When tested, they show differential activation for items based on repetitions and rehearsal or suppression.

### Remembering future intentions: The effects of suppressing targets vs. intentions on performance
*James Erskine, Lia Kvavilashvili*
Two experiments were undertaken to show that the rebound effect traditionally found after thought suppression could be used to enhance prospective memory (PM) performance. Suppression or expression of the prospective memory target did not enhance PM. However suppression

or expression of the intention itself (i.e. target plus intended action) did enhance prospective memory performance.

**Auditorium**
**SYMPOSIA 11:40a.m -12:55p.m.**
**Offenders and victims as eyewitnesses**
**Chair: BARRY S. COOPER**
**Contact: barryc@interchange.ubc.ca**
**Keywords: Autobiographical memory, Eyewitness testimony.**

The present symposium will focus on theory driven eyewitness memory research. The first presenter will review a recently developed biopsychosocial model of eyewitness memory. The second presenter will discuss the results of an ongoing study on violent offenders` autobiographical memories. The third presenter will describe the results of a study that examined incarcerated psychopathic offenders` memories for their crimes. The fourth presenter will discuss the results of a study that examined 1600 delayed disclosure cases of childhood sexual abuse. The theory and research discussed within this symposium will be discussed in terms of their applications to the criminal justice system.

### The psychopathic eyewitness: Perspectives from a biopsychosocial theory of eyewitness memory
*Hugues Herve, Barry Cooper, John Yuille, Judith Daylen*
Research into eyewitness memory has largely been undertaken atheoretically,with findings, not theory, dictating the growth of the field. The few theories that have been proposed have either taken a very simplistic approach to explain the association between stress and performance (e.g., Easterbrook, 1959; Yerkes & Dodson, 1908) or focused on only one aspect of the traumatic response (e.g., Christianson, 1992; Revelle & Loftus, 1990) and, therefore, have had limited use. As a result, seemingly contradictory research findings, such as those reported between lab and field researchers (i.e., stress has a predictable effect on memory vs. trauma has a variable effect on memory, respectively), have been debated, rather than integrated. The proposed presentation will introduce a newly developed biospsychosocial model of eyewitness memory (Hervé, Cooper, Yuille, & Daylen, under review); a theory based on the latest advancements in the areas of affect, memory, and trauma. According this model, an eyewitness` memory for an event of significance will depend on his/her physiological responsivity to stress/arousal and his/her interpretation of the said event, both of which are believed to be delineated by a host of personal/historical and situational/contextual variables. Special emphasis will be placed on the implication of this model for the assessment and interviewing of eyewitnesses with psychopathic personality disorders. Finally, the more general implications for eyewitness research and the criminal justice system will be discussed.

### Canadian violent offenders' memories for crimes and traumas
*Barry Cooper, Hugues Herve, John Yuille*
Although the study of eyewitness memory represents one of the largest empirically based areas of forensic psychology, the majority of the existing research is analogue based. There is a clear need for theory driven field based eyewitness memory research. The present study is part of a larger investigation of violent autobiographical memories. The objective of the present field research was to examine the effects of trauma and crime on eyewitness memory through the examination of offenders` autobiographical memories. Ninety violent offenders from two British Columbia federal penitentiaries were interviewed and asked to recall 5 different types of autobiographical memories: an instrumentally violent event, a reactively violent event, a pleasant event, a subjectively disturbing event, and a violent event for which the offender has poor memory. The quality and quantity of the memories will be compared and both state (e.g., arousal, dissociation, stress) and trait variables (e.g., dissociation, personality, psychopathy) will be assessed. Preliminary analyses suggest that instrumental acts of violence are better recalled than acts of reactive violence. Preliminary results also suggests that, while psychopaths are similarly aroused as nonpsychopaths when committing instrumental acts of violence, they report significantly less symptoms of Posttraumatic Stress Disorder. The results of this investigation have applications within both academia and the criminal justice system. Indeed, the varied effects of trauma on memory pose fundamental questions in both cognitive and forensic psychology, and eliciting and evaluating the recall of criminal/traumatic events can be one of the most crucial activities in any criminal investigation.

### Credibility and reliability of delayed reports of child sexual abuse
*Deborah Connolly, Don Read*
There have been relatively few discussions of delayed prosecutions of historic child sexual abuse (HCSA). We discuss particular issues related to the credibility and reliability of witnesses' reports of HCSA based upon archival quantitative analyses of 1628 complainants of HCSA: specifically, (1) the confidence accuracy relationship, (2) long-term forgetting of autobiographical information, (3) the effect of the age of the complainant when the alleged offense occurred on memory for the event, (4) memory for instances of repeated events, (5) errors of omission, (6) memory for time, (7) memory for frequency of occurrence of the event and (8) noncontinuous memory. Each of these issues is discussed in terms of their impact at trial and psychology scholarship.

**KCF7**
**PAPER SESSION 11:40a.m -12:55p.m.**
**Criminal identification**

**Chair: LAUREN R. SHAPIRO**

### Own group biases in recognition memory
*Daniel B. Wright*
Much research has shown that people are better at recognizing faces of people of their own race than of other races. This paper shows that this is true also for your own gender and your own age. Implications for eyewitness testimony are discussed.

### The effects of group collaboration on eyewitness testimony and identification
*Lauren R. Shapiro, Erin Haugen*
At the crime scene, police isolate eyewitnesses in order to keep their testimony from being contaminated. This study reviewed whether relevant, irrelevant, and no group collaboration impacted on the accuracy of the testimony and identification. Criminal discussion aided event recall, but had no affect on identification accuracy.

### "Who did you choose?": The effect of social influence on eyewitnesses' and lineup administrators' confidence in identification decisions
*Elizabeth Brimacombe, Meredith Allison, Lynn Garrioch*
We examined the impact of two variables on witnesses' and lineup administrators' confidence in lineup decisions: (1) View of crime of the witness relative to a cowitness-confederate (Better, Worse, or Same View), and (2) Concurrence of lineup decisions of witness and confederate (Agree, Disagree, No Information).

### Model of the sequential lineup advantage
*Scott D. Gronlund, Curt Carlson, Shawn Singer*
We manipulated type of encoding (relative vs. absolute) and type of lineup (simultaneous vs. sequential). Suspect height rather than identity varied across individuals. A model is proposed that posits that the sequential lineup advantage occurs when a distinctive characteristic is encoded and recollection is used to retrieve that characteristic.

### Multiple choices in large sequential lineups with children and adults
*Avraham M. Levi*
Children and their parents participated in 20-25 long sequential photo lineups that either allowed multiple choices or did not. Allowing multiple choices caused three times more identifications, because of greater reluctance of the one-choice witnesses to choose. More attention to large sequential lineups and multiple choices is urged.

**KCF8**
**PAPER SESSION 11:40a.m -12:55p.m.**
**Autobiographical memory I**
**Chair: RHIANNON ELLIS**

### Changes in imagery and perspectives associated with autobiographical memories
*Leslie R. Taylor*
This research examined changes in imagery over time for different autobiographical event categories. Participants reported more observer perspectives and less overall imagery with older events. However, reported imagery differed depending on event category. Findings further confirmed the constructive nature of remembering and need for caution when soliciting early life events.

### The prevalence and accessibility of event clusters from different life periods
*Norman R. Brown*
An event-cueing experiment was conducted to assess the prevalence and accessibility of events clusters from childhood, high school, and the past week. Regardless of age, cueing events frequently elicited cluster mates. When cluster mates were retrieved, RTs were unaffected by cue age; otherwise, RT increased with age.

### From content to function: Autobiographical memory in American and Chinese adults
*Qi Wang, Martin Conway*
This study examined functional variations in autobiographical memories of European American and Chinese middle-aged adults. Participant each provided 20 personal memories from any period of their lives. Systematic cultural differences emerged in the socioemotional content of memories. Findings are discussed in light of the self definitional and directive functions of autobiographical memory in the context of culture.

### Are odours not better reminders of past experiences?

*Simon Chu, Laurence Argyle, John J. Downes*
While odours are known to be powerful memory cues, there is no evidence of the accuracy of such retrieved episodes. Here, we create naturalistic events for retrieval after different delays and cued by different modalities. Surprisingly, olfactory cues show no consistent superiority, possibly due to retrieval conditions.

## Distorting the subjective past and subjective present through story completion
*Veronika Nourkova, Daniel M. Bernstein, Elizabeth F. Loftus*
The major goal of the present study was to examine whether creating a biographical sketch for a fictional adolescent increased confidence in one`s autobiographical memory for his/her own adolescence. The obtained increase in confidence was greater for individuals who considered adolescence their subjective past than for individuals who considered adolescence their subjective present.

**Auditorium**
**KEYNOTE**
**1:55 - 2:40 p.m.**
**A multimodal memory model for applied**
**research in memory and cognition**
**DAVID RUBIN**
**Chair: David Payne**

**Auditorium**
**SYMPOSIA 2:45 - 4:00 p.m.**
**Applied metacognition: Monitoring performance**
**Chairs: C. J. A. MOULIN, J. DUNLOSKY, T. J. PERFECT**
**Contact: chris@psychology.leeds.ac.uk**
**Keywords: Metacognition.**

Recent research has taken the study of metacognition, 'knowing about knowing', into domains and populations where the application of metacognition could enhance our understanding of human performance. In this symposium, we present novel research detailing such an applied approach. Five talks will consider metacognition in varying populations: healthy older adults, people with Alzheimer's disease, and divers with nitrogen narcosis. We will also consider the application of metacognition to memory, text comprehension and decision-making tasks. A common theme throughout will be that metacognitive monitoring can have several bases - from generalized beliefs to a true evaluation of cognitive processes. We will discuss the merits of these different types of monitoring.

## Beliefs about the effects of aging on memory
*Christopher Hertzog*
A pervasive belief about aging is that episodic memory declines substantially over the adult life span. Most existing questionnaires assess only an individual's ratings of their own memory functioning. Lineweaver and Hertzog (1998) developed a questionnaire that measures general beliefs about memory and aging - what happens to the average older adult - and relates these beliefs to beliefs about one's own memory functioning. Persons of all ages believe in memory decline, although older adults rate memory as being relatively more stable from age 20 to 40 than do younger adults. Individuals rate different kinds of memory in subtly different ways - for example, they believe that memory for names declines more precipitously than memory for faces. Older adults also believe there is a higher likelihood of at least some persons maintaining or even improving memory functioning in middle adulthood and old age. Individuals differ in the slopes of rated memory aging. However, these differences are not important predictors of episodic memory task performance. Instead, an internalization of the beliefs in general decline, in the form of believing that oneself has and will decline, is more likely to be associated with lower ratings of personal control over memory, less effective strategic behavior in memory tasks, and lower memory task performance.

## Metacognition and decision making
*Marie Carroll, Kate Batha*
This study examined the impact of metacognition in the domain of decision making. We attempted to determine which component of metacognition - knowledge of cognition or regulation of cognition - assists decision making best, and whether metacognitive strategy instruction is effective in improving decision making performance. The sample comprised 98 University students who were divided into three decision making ability groups; 'above average', 'average' and 'below average'. Two decision making tasks (one strategic and one tactical) were presented to participants prior to experimental manipulation and after manipulation. Experimental manipulation consisted of metacognitive strategy instruction, which was administered only to the experimental group. Results demonstrated a relationship between metacognitive awareness and decision making performance. Although knowledge of cognitive strategies was important when making decisions, it was the regulation and monitoring of strategy use throughout the decision making process that is the biggest determinant of an individuals decision making performance.

Metacognitive strategy instruction was found to be beneficial to those participants in the below average group, but not those in the average or above average groups. If time permits, further work examining individual difference in decision making for people with different metacognitive styles (vigilant and hypervigilant) will be described.

### The application of metacognition to memory remediation in Alzheimer's disease
*Chris Moulin*

Despite initially overestimating their performance on memory tasks, previous research has shown that people with Alzheimer's disease (AD) benefit from feedback from performance in order to make more accurate predictions of performance. This suggests that, to some degree, metacognition is intact in AD. In order to assess whether this intact metacognition can be harnessed to improve memory in AD, the sensitivity to different tasks known to affect memory was explored. In all experiments, AD patients and controls predicted performance on a ten-item list before and after study, and recall was tested. It was found that AD patients can predict performance accurately on some tasks (they are sensitive to list difficulty and list length), but are not aware of other mnemonic techniques (they are insensitive to levels of processing, repetition, and subject performed tasks). This suggests that AD patients are only capable of evaluating the stimulus and do not base metacognition on an evaluation of memory itself. We discuss the results in terms of current theories of metacognition and the benefits of different behavioural tasks to alleviate memory loss in AD.

### Term-specific judgments for monitoring learning of concepts within texts
*John Dunlosky, Katherine A. Rawson*

Two decades of research on metacomprehension have led to the somewhat discouraging conclusion that students are rather poor at assessing their learning of text materials. One potential reason why accuracy is relatively poor pertains to how it has been assessed. Researchers often have students read several paragraphs, each one on a different topic. After reading a given paragraph, the students are asked to judge how well they will perform on a later test over the material. After judging each paragraph, tests over the materials are administered. The intraindividual correlations between the judgments and test performance (a measure of relative accuracy) are typically closer to nil than to perfect. Accuracy here may be low because students are asked to make a single, global judgment to indicate how well they have learned the content of an entire paragraph. Even if the judgments accurately portray a student's learning of a portion of each paragraph, accuracy will be low because the tests generally cover key concepts throughout the material. We have been investigating the accuracy of term-specific judgments, which may help students sidestep the aforementioned problem and obtain high levels of accuracy. These judgments prompt students to evaluate their learning of specific concepts in each paragraph. For instance, instead of making a global judgment for each paragraph, the student rates his or her learning of specific definitions within the paragraph--a kind of judgment that is analogous to evaluating one's learning by taking the practice tests at the end of textbook chapters. In this talk, we describe the overall accuracy of these judgments, factors that constrain their accuracy, and potential avenues for obtaining maximal metacomprehension accuracy.

### Discussants/The effects of nitrogen narcosis on metacognition in divers
*T. J. Perfect, S. Harding, P. Bryson*

There is considerable interest in the cognitive performance of divers, at increasing depths beneath the ocean. Attention has focused on a phenomenon known as nitrogen narcosis, which occurs at depths of around 30m. Whilst it is known that being at such depths is associated with poor performance on a range of cognitive tasks, nothing is known about divers` awareness of their changes in cognitive function. This study examines both cognitive function and metacognitive awareness of function at surface, and at depths of 10m, 20m, 30m and 40m. Our rationale for studying metacognition in divers is that whilst the phenomenon of nitrogen narcosis is well established empirically, and features in the training provided to divers, anecdotal evidence suggests that divers believe that it is something that doesn`t occur to them. This pattern may arise if divers are unaware of the cognitive changes that occur at different depths. Four tasks are assessed - simple reaction time, motor tracking, mental rotation, and long-term memory. Divers were required to make both predictive and postdictive judgements of performance at each simulated depth in a diving chamber. Analysis and discussion will focus on both cognitive change with increasing depth, and metacognitive awareness of such change, and how such changes relate to diver safety.

**KCF7**
**SYMPOSIA 2:45 - 4:00 p.m.**
**Older adults as eyewitnesses**
**Chair: KATRIN MUELLER-JOHNSON**
**Contact: kum2@cornell.edu**
**Keywords: Aging, Cognitive function, Eyewitness testimony.**

Seniors are one of the fastest growing population segments in the developed world. As they also remain healthy and active for longer, seniors become increasingly important as witnesses to crimes or accidents. Research on eyewitnesses has concentrated mainly on younger adults and children, with seniors as witnesses in the legal system only recently attracting attention. This symposium begins with an overview of current research on older adults' eyewitness performance. Subsequent presenters discuss photo lineup identifications, narrative style of witness statements and suggestibility. These presentations will be discussed in terms of forensic issues that appear to be specific to elderly witnesses.

## The ageing eyewitness
*Amina Memon, Fiona Gabbert, Lorraine Hope*

There is an enormous literature on the conditions under which eyewitnesses may be mistaken. However, the bulk of this is based on studies of young adults (typically college students) and children. The ageing population profile of developed countries and the fact that senior citizens are more active now than ever before led to our interest in the older witness. In terms of recall, research conducted in the last three decades has shown that young adults are significantly superior to older adults in many eyewitness skills, for example, in accuracy of recall for perpetrator characteristics, environmental details, and for details of actions and events (see Yarmey, 2001). The current paper reviews more recent research on how the age of the witness can influence their ability to recognise unfamiliar faces (the recognition of faces seen only once before) in eyewitness situations. We present the results of several recent studies which show that older adults (60-80 years) are more prone to making false choices. In other words they are more likely to falsely 'recognise' a face they had not seen previously. The nature of the age related memory errors, the underlying mechanisms (cognitive, social and neuropsychological) and practical implications of the findings will be also be discussed.

## The performance of older eyewitnesses on photographic identification lineup
*Rachel Rose, Ray Bull, Aldert Vrij*

The limited literature concerning the performance of older witnesses reveals that older adults tend to demonstrate poorer performance on identification lineups compared to younger adults (Searcy, Bartlett, & Memon, 1999). This was confirmed to an extent in each of four studies. However, each study investigated how older adults could be helped to improve their performance on identification lineups. Young (18-30 years) and old (60-80 years) participants viewed a simulated mock crime event involving a young and old perpetrator. One technique investigated to aid the performance of older witnesses was context reinstatement, both mental context reinstatement and photographic context reinstatement (studies one and two). Photographic context reinstatement had a significant beneficial effect for older adults in the first study. There was no significant effect of mental context reinstatement. Study three investigated the use of stringent decision criteria at the time of making a decision on the lineup. Disappointingly there was no main significant beneficial effect of these instructions, though they did allow older participants to perform at an equivalent level to younger participants under certain circumstances (e.g. when the lineup was presented sequentially). Throughout studies two and three evidence was gathered that suggested older participants failed to remember fundamental lineup instructions warning them that the perpetrator may not be present in the lineup. Therefore, study four used enhanced lineup instructions. These did not have the effect expected, but they did allow older participants to perform at an equivalent level to younger participants when the lineup was presented simultaneously. Although some of the aids for older witnesses investigated in these studies did not have the 'full' effect hypothesised, older adults were able to perform at an equivalent level to younger adults given certain circumstances, and these findings provide a basis from which further research can be conducted.

## Crime characteristics affect lineup choices by young and older adults
*James C. Bartlett, Amina Memon, Amanda Seipel, Lynn Hulse, Jean Searcy*

A clear lesson emerging from research on decision-making is that behavior is affected by how a choice and its consequences are conceptualized or "framed." Research on the lineup-identification task indicates that framing effects might be produced by several variables and the research reported here is focused on one: The blameworthiness of the perpetrator's behavior. In two experiments, groups of young (18-30 year old) and senior (60-80 year old) adults saw a videotape of a young man apparently breaking into a house and subsequently were told that he had been accused of a burglary and murder versus a petty theft (Experiment 1), or that he had been accused of a burglary and assault versus no crime at all (Experiment 2). In a subsequent lineup task, participants in the serious-crime condition were more likely to correctly identify the perpetrator when the perpetrator was present (perpetrator present condition), but they also were more subject to a false identification error when he was not (perpetrator absent condition). Although older participants made more false identifications than did young adults, both young and senior participants made more identification attempts in the serious-crime condition than in the minor-crime/no-crime condition. These results suggest that crime-seriousness is a factor producing framing effects in the lineup task.

## Young and older adult eyewitnesses' use of narrative in testimony
*M. Allison, J. B. Bavelas, C. A. E. Brimacombe*

This study examined differences in the manner in which older and young adult witnesses present information about a crime and whether these differences affect assessments of the witnesses' credibility. In a previous study, both older adults (recruited from a mid-sized Canadian city) and young adults (undergraduate students) witnessed a simulated crime video. The witnesses were videotaped as they freely recalled the events of the crime. Later, university students acting as mock jurors viewed the videos and assessed the witnesses' credibility. The transcribed testimonies of 123 older and younger witnesses were analyzed to determine whether some witnesses organize their testimonies in a more cohesive, narrative-like fashion than others, especially as a function of age. First, operational definitions of 14 features of narrative were formulated. The four main categories of narrative features were: Elaborations, Structure, Narrative Voice, and Sequence/Coherence. Two independent raters analyzed a sample of the testimonies to assess their narrative features. Inter-rater reliability was high and two principal components analyses confirmed that the narrative features were related to one another. Older adults were more likely than young adults to use several narrative features in recounting the crime they witnessed. Witnesses who used fewer Sequencing features and Elaborations were perceived as more credible. Implications for future research in aging and narrative will be discussed.

## Older adults' susceptibility to suggestions

*Katrin U. Mueller-Johnson, Steven J. Ceci*

Interviewing a potential victim is one of the most important parts of the investigation of elder abuse. Given the pressures under which Adult Protective Service personnel work, it is likely that they sometimes resort to leading questions. While suggestibility in children has been subjected to extensive study, which has resulted in significant modifications in the Child Protective Service's investigative procedure, there is as yet little knowledge about older adults' susceptibility to such leading questions. To investigate this issue, older adults (65 and older) and younger adults (aged 18-30) in a small town in New York State participated in an event, which involved several observed and self-performed actions, and included being touched. Subsequently they were twice suggestively interviewed. A third interview was conducted in a neutral manner by a new interviewer. Participants in the control group were neutrally interviewed three times. Several individual difference measures were examined, including memory functioning, suggestibility indices, and self-efficacy. Differences between younger and older adults in their memory for the event and their susceptibility to suggestions will be presented, and implications for interviewing seniors in a forensic setting, particularly elder abuse investigations, will be discussed.

**KCF8**
**PAPER SESSION 2:45 - 4:00 p.m.**
**False memory**
**Chair: RHIANNON ELLIS**

**The spread of culture: A review of the ongoing recovered/false memory epidemic in Denmark**
*Dorthe Berntsen*
The ongoing recovered/false memory epidemic in Denmark is similar to the one in the U.S. ten years earlier. At least 135 cases of sexual abuse in daycare centers have been reported since 1995. Numerous women have recovered memories of incest in psychotherapy. An overview is offered and underlying factors discussed.

**Causal inference and stereotyping interact to produce false memories for crimes**
*Mark T. Reinitz, Carolyn Weisz*
Participants viewed slides showing a homeless or well-dressed person's trip to a restaurant; some saw a slide implying that the actor had littered. Causal inference interacted with stereotyping; the most false recognitions of a new picture of the actor littering occurred when the inference was consistent with the stereotype.

**The (mis)information effect: Trace alteration or coexistence?**
*Heather Flowe, Ebbe Ebbesen*
Payne et al. (1994) completed a meta-analysis of misleading post-event information. They concluded that misleading suggestions significantly impair performance on the standard and modified tests. The present paper revises this conclusion by conditioning the data on two variables: age of subject and type of to-be-remembered information.

**Is mood related to memory performance with the Deese-Roediger-McDermott procedure?**
*Dan Wright, Helen Startup, Sorcha Mathews*
We examine the relationship between mood and memory using the Deese-Roediger-McDermott procedure. We also look at the relationship between dissociation and memory performance. All observed effects were small, suggesting that mood does not increase the likelihood of errantly reporting critical lures. Replicating past work, dissociation is not correlated with recall or recognition of critical lures.

**Unconscious plagiarism: Effects of participant elaboration**
*Louisa - Jayne Stark, Timothy Perfect, Stephen Newstead*
Unconscious plagiarism (UP) was studied using a standard group-generation phase followed by individual recall-own and generate-new tasks. After the group-generation phase, participants in two studies elaborated upon some of the ideas generated by the group. This elaboration significantly increased UP in the recall-own, but not in the generate new task.

**Auditorium**
**SYMPOSIA 4:20 - 5:35 p.m.**
**Theoretical and practical issues in eyewitness identification**
**Chair: RICHARD KEMP**
**Contact: richard.kemp@unsw.edu.au**
**Keywords: Eyewitness identification, Eyewitness testimony, Face perception and identification.**

This symposium brings together four papers presented by researchers from Australia and the UK working in the area of eyewitness identification

evidence. Each of these papers deals with a real world topic and addresses theoretical issues relevant to that topic and current within the literature. The topics covered include witness identification from lineup and the construction of facial composites. The papers present both laboratory-based research and archival studies. The findings described by the presenters will be of practical importance to policy makers and significant to the development of theory within this burgeoning field of research.

### The role of mental imagery in facial composite construction and eyewitness identification
*Clifford Clark, Graham Pike, Nicola Brace*
A considerable amount of research has now been conducted on verbal overshadowing and its impact on face recognition. This work has concentrated on the effects of either verbalising or writing the description of the target face on a recognition task. Further research has found that a release from verbal overshadowing appears to occur after a number of minutes, conducive to an explanation of verbal overshadowing interfering at the retrieval stage. This presentation looks at three experiments, the first two contain elements of verbal description and requests to image target faces in the mind`s eye and a third that manipulated an imaging task prior to a recognition task and which had no verbal- or written-description task. Data from the first two experiments and preliminary data from this last experiment suggest that imaging does have a detrimental effect on subjects` recognition ability and may operate in a similar fashion to verbal overshadowing. The results of these experiments are discussed in relation to the construction of facial composites by an eyewitness, particularly in terms of how long-lived the overshadowing effect might be. These studies also looked at whether individual differences in terms of imagery ability are predictive of the quality of facial composite construction.

### Absolute and relative decision processes in variants of the sequential lineup procedure
*Richard Kemp, Natasha Ryan*
Sequential lineups have been shown to result in fewer false identifications that the more usual simultaneous lineup system. It is thought that the poor performance in sequential lineups results from excessive reliance on relative decision processes in which the witness chooses the person most like the target. Sequential lineups are thought to encourage the use of absolute decision processes and hence reduce the number of false positive identifications.As a result of this perceived advantage, several jurisdictions recently have introduced sequential lineups. However, in the process of implementation changes have been made to the details of the sequential procedure, either to meet the requirements of local law or to satisfy the concerns of the police. This paper presents research designed to assess the impact of these changes on the decision processes employed by witnesses. Participant witnesses watched a video re-enactment of a crime and then attempted to pick the perpetrator from either a simultaneous, a standard sequential, or one of two modified sequential lineups. Self reported decision strategy was collected along with decision time and other variables. These variables were also measured in tasks that forced either relative or absolute decision processes. The result provide only partial support for the suggestion that performance is determined by decision strategy, and demonstrate that even minor modifications to the sequential procedure can have a major impact on witness accuracy.

### What factors affect visual identification in a real case?
*Graham Pike, Nicola Brace, Sally Kynan*
Laboratory based psychological research has identified a large number of factors that can affect the recognition ability of an eyewitness. These include the anxiety/stress experienced, the presence of a weapon, whether the perpetrator and witness were of the same or different ethnic origin, the age of the witness and the delay between the crime and the identification procedure. Data was collected via a detailed survey was conducted of over 2,500 identification procedures in the UK and via summary statistics from over 20,000 identification procedures and analysed to see whether these factors have any effect on real eyewitnesses. The results of these analyses revealed that that any effects of anxiety, weapon focus or own-race bias were negligible. Although the comparative ethnicity of suspect and witness did not seem to have an effect, the actual ethnicity of the suspect did, with the percentage rate for positive identifications of black suspects being higher than that for white suspects. The delay between crime and identification procedure and the sex of the suspect were also important factors. However, the age of the witness was the best single predictor of identification performance. Analysis revealed that children under 15 and adults over 40 (and particularly over 60) appeared to be significantly less accurate than witnesses between 16 and 39. As well as the rate of positive identifications, the type of negative outcome, through 'don't know', 'chose foil' and 'perpetrator not present' responses was also analysed. These data were useful in determining the acceptance/rejection criteria employed by witnesses when attempting identification.

### Identification using non-facial cues
*Nicola Brace, Graham Pike, Sally Kynan*
Interviews were conducted with more than 50 UK police officers to determine how relevant legislation and guidelines concerning visual identification were interpreted and how identification procedures were conducted in light of these. Analysis of the interviews revealed considerable differences across forces in terms of how identification procedures were constructed and conducted. One key difference concerned the introduction of cues such as height, gait and speech and the manipulation of paraphernalia. The inclusion of such cues was often based on the 'first description' obtained from the witness, which guides the construction of identification procedures in the UK. As the emphasis is on obtaining this description as quickly as possible after the crime, they are often recorded by untrained police telephone operators. The accuracy of witness descriptions (of the perpetrator) was studied in a series of field studies, in which participant-witnesses provided a description less than one minute after viewing a live, staged crime. This analysis revealed that even after so short a time period, considerable inaccuracies were introduced by the witness when describing non-facial characteristics such as height/body cues, clothing and age. These findings are discussed in

relation to research that has shown that the inclusion of non-facial cues, such as body, gait or speech cues, had no affect on positive identifications, but did significantly increase the rate of false alarms.

## KCF7
### PAPER SESSION 4:20 - 5:35 p.m.
### Ageing and Cognitive Function
### Chair: JAMES BARTLETT

**Adult age differences in, and predictors of, mental imagery: Implications for every day cognition**
*Eva Kemps, Rachel Newson, Mary Luszcz*
Mental imagery proficiency of younger and older adults was examined from a resource theories perspective. Effects of ageing on image generation, maintenance, scanning and manipulation were mediated by processing speed, working memory, executive function and sensori-motor ability. Implications for the processing resources, executive function and common cause hypotheses of cognitive ageing are discussed.

**Autobiographical narratives tell a different story: Emotional experience in two adult age groups**
*Nicole Alea, Susan Bluck, Angelenia Semegon*
Older and younger adults' autobiographical narratives of an emotional event were coded for emotion. Comparing scalar self-reports and narratives (salience, frequency, intensity of emotion) suggest that narratives show a somewhat different pattern of age differences than traditional emotion measures. Autobiographical narratives offer a promising technique for studying emotion and aging.

**A diary study of involuntary autobiographical memories: Effects of aging and conditions under which they occur**
*Simone Schlagman, Lia Kvavilashvili, Joerg Schulz*
Little is known about involuntary autobiographical memory (IAM) and the few studies conducted have investigated young people. The present diary study examined the IAMs of both young and old participants. Some interesting age effects emerged and the pattern of results is compared to those of the previous studies on voluntary autobiographical memories.

**Individual and age-related differences in self-initiated retrieval of intentions: The influence of difficulty of enactment and affect regulation**
*Miguel Kazén, Reiner Kaschel*
Self-initiated retrieval of intentions was investigated on two experiments involving younger and older participants, using a modified event-based paradigm. It was predicted that individual differences in maintaining and enacting intentions (state vs. action orientation), "difficulty of enactment" of the prospective action, and age would moderate self-initiated retrieval. Results were consistent with predictions.

**Enhancement of delayed memory retrieval by arousal after learning: A possible intervention approach**
*Kristy A. Nielson, Douglas Yee, Kirk Erickson, Ted Bryant*
Arousal and emotion induced after learning can enhance later retrieval. Two experiments showed that arousal induced after learning by either a positive or a negative stimulus produced enhanced delayed retrieval for a word list. The results suggest that self-induced arousal training would be successful as a memory enhancement intervention.

## KCF8
### PAPER SESSION 4:20 - 5:35 p.m.
### Communication II
### Chair: NORMAN BROWN

**Measuring how consumers interact with an embodied agent**
*Andrew Stewart, Brian Newby, Kathryn Shaw, Kevin Purdy, Alastair Gale*
In this paper we discuss experiments examining how consumers interact with an embodied agent embedded in a website. Eye tracking data show evidence for 'banner blindness' to the area of the website where the embodied agent is located. A Wizard of Oz manipulation examines the impact of various factors implemented in the agent.

**Memories about childhood: are source monitoring judgements always based on clarity of mental image?**
*Victoria Eremenko, Veronika Nourkova*
The results of the present study suggest that mechanisms of source identification are not the same at different levels of autobiographical memory organization (Conway, Pleydell-Pearce, 2000): visual clarity, number of details and emotionality play key role at the level of event-specific knowledge, but at the level of general events personal significance is more important. Our assumption is that thematic knowledge conveys

significant information for the self and therefore subject tends to rate it as remembered on his own.

## Temporal Ordering of Dreams and Actual Experiences

*Christopher Burt, Simon Kemp*

Participants classified sketches they had made of dreamt and real experiences, reaction times were measured, and then the sketches were arranged in temporal order. Results indicated that the ability to temporally order dreams and real experiences was essentially identical, ordering was not related to memory ratings, nor to reaction times.

## Mixed reactions: A reconceptualization of the post-comparison anchoring effect

*Norman R. Brown*

A new perspective on the classic anchoring effect (Tversky & Kahneman, 1974) was explored in a series of experiments. This approach, which employs a test-retest procedure and confidence and informativeness ratings, recasts anchors as potentially informative numerical values and accounts for observed effects of anchor size, plausibility, knowledge, and context.

## Text change in reading: How people represent product related information

*Andrew Stewart, Tony Sanford, Patrick Sturt, Eugene Dawydiak, Elyssa Niswander*

We present the results of two experiments using a modification of the change blindness paradigm in the context of reading. Recent work by Sanford et al. (submitted), has shown its value in measuring how people represent language. This modification examines how it can be used to measure how people represent product related information.

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**ELPHINSTONE**
**POSTERS 5:30 - 7:30 p.m.**
**ELPHINSTONE POSTER SESSION 5:30 - 7:30pm**

**Autobiographical Memory**

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**A-1**
**Encoding conditions for temporal marker memories: Do they differ from other autobiographical memories?**
*Dorthe Thomsen, Dorthe Berntsen*
The encoding conditions of temporal markers (TMs) were investigated by having 104 students recalling 5 memories from a past relationship and 106 students recalling 5 memories from their first term and rating them on several encoding variables. Results showed that TMs were rated higher on unusualness, importance, consequence and intensity

**A-2**
**Autobiographical memory of pleasant and unpleasant experiences**
*Elvira Garcia-Bajos, Malen Migueles*
In this study we examined whether there are qualitative and quantitative differences between positive and negative autobiographical memories. We studied events produced by a sample of university students, together with their distribution in time and emotional level. A detailed analysis of the contents of the accounted memories was included.

**A-3**
**When does drawing help children talk about their past experiences?**
*Emma Willcock, Harlene Hayne*
To predict which children will benefit from drawing during a memory interview, we assessed the IQ, language skill, and memory ability of 125 children who were subsequently interviewed about a target event (with or without drawing). These variables influenced children's ability to use drawing to facilitate recall.

**A-4**
**Involuntary autobiographical memory and the reminiscence effect**
*John H. Mace*
This study examined the possibility that the reminiscence effect would appear in the involuntary memories of older adults. Both younger and older adults participated in a diary study of involuntary autobiographical memories. The results showed that the involuntary memories of younger adults pertained mostly to recent life periods, whereas the involuntary memories of older adults pertained mostly to remote life periods, the classic reminiscence effect.

**A-5**
**Individual differences in the accuracy of autobiographical memory**
*Robert Horselenberg, Harald Merckelbach, Ineke Wessel*
The current study investigated spontaneous autobiographical distortions and which personality traits contribute. Volunteers kept a diary and six months later, they were unexpectedly given a recognition test consisting of original memories and several types of foils. Participants performed

relatively well on the recognition task. Curiously enough, fantasy proneness was related to superior recognition performance.

**A-6**
**Older adults' life event memories: Wisdom is bumpless**
*Susan Bluck, Judith Glück*
Older adults (N = 360) completed a "life story matrix" including several significant life events, and one wisdom-related event. Events were dated, and rated for valence, control, impact on later life and on current identity. Life events showed the well-replicated "bump" pattern, but wisdom-related events showed constancy across adulthood.


# Communication/Linguistics


**B-1**
**Calendar temporal cuing and the structure of autobiographical memory**
*Robert Belli, Eun Ha Lee, Frank P. Stafford*
Calendar questionnaire methodologies offer respondents temporal cues that are afforded within the structure of autobiographical memory, and which encourage a more complete and accurate reconstruction of the past. These temporal cues exist as associations among landmark events, extended events, and transitions between extended events. Calendar methodologies promote the use of sequential associations of what happened earlier and later among extended events within themes, and the use of parallel associations among contemporaneous events between themes. In the first direct comparison between calendar and traditional standardized question-list interviewing methodologies, calendar methods led to better quality retrospective reports on residential changes, income, and weeks missing work due to unemployment and illness for a reference period of one to two years previously. Analyses of the verbal behaviors of these interviews revealed that interviewers more frequently probed with temporal cues, and that respondents more frequently engaged in spontaneous temporal retrieval strategies, in the calendar methods in comparison to the question-list. The sequential temporal cues consisted of determining when the transitions between extended events occurred, the length of extended events, and whether events extended into the present. The parallel temporal cues mostly consisted of verifying the temporal contiguity between personal and holiday landmarks and the to-be-reported events. The use of temporal cuing strategies was associated with higher quality retrospective reports only in the calendar interviews. Taking advantage of the temporal cues inherent in the structure of autobiographical memory relies on the encouragement of narrative reporting.

**B-2**
**Comparison of the life history calendar method and a conventional interview method in a study of the lifetime intimate partner abuse**
*Mieko Yoshihama, Brenda Gillespie, Amy C. Hammock, Robert Belli, Richard Tolman*
The estimated prevalence of lifetime intimate partner abuse in previous studies may have been underestimated due to the respondents' recall difficulty. For example, a substantially lower proportion of middle-aged women report partner abuse that occurs in their younger years compared to the proportion of younger women reporting abuse over a similar time-period. This presentation will compare two studies of partner abuse conducted with samples drawn from the same sampling frame, one using the Life History Calendar method (LHC), and another, a commonly-used structured interview method. Respondents in the LHC study were 42 low-income women aged 18–54 who were randomly selected from a list of welfare recipients residing in a large urban county in a Midwestern state. Comparison data were drawn from the Mother`s Well-Being Study, a study of 668 women receiving welfare in the same urban county. As hypothesized, the women in the LHC sample were more likely to report the experience of partner violence, and they tended to report the first abuse to have occurred at a younger age than the MWS comparison sample. In addition, women in the LHC sample reported similar pattern of abuse experiences across age groups, whereas in the MWS sample, the younger women reported more and earlier abuse than older age groups. This study provides empirical support for the effectiveness of the LHC method in eliciting the report of lifetime victimization retrospectively.

**B-3**
**Computerized calendar and question list methods: Economic and health measures**
*Patricia Andreski, Robert Belli, Frank P. Stafford*
Paper and pencil calendar instruments are disadvantageous as they rely on interviewing skill to determine the appropriateness of temporal cues and to avoid inconsistencies in reports. Using windows-based software and graphical user interface tools, computer-assisted calendar interviewing instruments have been programmed to facilitate the use of temporal cues. In addition to illustrating the features, functions and flexibility afforded by this new software technology, this presentation will report on the first comparison between computerized calendar and computer-assisted-interviewing question-list methods on the quality of life course retrospective reports. Respondents consisted of participants in the Panel Study of Income Dynamics (PSID). Respondents and interviewers were randomly assigned to conditions, with data collected on 313 calendar (94% response rate) and 318 question-list (97% response rate) respondents. Using prospective data from the PSID as validation, the correspondence between the retrospective reports collected by computerized calendar and question-list methods and the prospective reports are compared. Outcome measures include the frequency and timing of residential changes, periods of employment and unemployment, and judgments of health status. Pilot data of 60 respondents administered the life course computerized calendar instrument revealed substantive Pearson correlations between the retrospective calendar reports and the prospective PSID reports on annual amount of work from 1968 to 1993, with a range of r = .46 to .83 and a mean of r = .66. Reports from the 313 calendar respondents are expected to mirror those from the pilot study in data quality, with reports from the 318 question-list respondents expected to be significantly poorer.

**B-4**
**Emotional and cognitive impact of TV news report: Identity role**
*Pascal Fitzner*

My poster project is a presentation of a research about TV news report impact on viewers self-definition. We examined both emotional and cognitive effects. The main interest is the report topic influence on "who the subjects are" answers. We discussed about impact of those alterations on autobiographical memories.

# Learning and Memory

**C-1**

**Future-oriented metamemory: Prospective memory complaint and impairment in middle-aged adults**

*Timo Mäntylä*

Two experiments examined metamemorial differences in prospective and retrospective memory. Participants of Experiment 1 were recruited through newspaper advertisements, and comprised middle-aged women who experienced exceptional problems in prospective memory. Experiment 2 involved a population-based sample of middle-aged adults who experienced varying degrees of retrospective memory problems. Both experiments showed selective differences in memory performance, so that the (prospective and retrospective) memory complainers showed impaired prospective, but not retrospective, memory performance. These findings suggest that memory for future intentions provides a more sensitive task criterion than memory for past events for assessing individual differences in self-reports of episodic memory problems. Task-specific differences in reliance on frontally-mediated executive processes may underlie these differences.

**C-2**

**A comparison of the memory rehearsal techniques used by adults with Asperger's Syndrome and matched controls**

*Brenda Smith, John Gardiner, Dermot Bowler*

Participants with and without Asperger's Syndrome were asked to rehearse out loud on three types of word-lists (categorized nouns, non-categorized nouns and rhyming words). A deficit was apparent in the recall of both rhyming and non-categorized words for the Asperger group, who also engaged in less elaborative rehearsal than controls.

**C-3**

**Recalling "dormir" after hearing "bed": False recall in Spanish-English bilinguals**

*Gloria Marmolejo, Kristen Diliberto, Jeanette Altarriba*

One hundred and twenty English-Spanish bilinguals listened to 10 lists of 12 words associated to a critical non-presented lure, either in English or in Spanish. Participants recalled five lists in English and five in Spanish. False recall was higher across than within languages and lowest in the Spanish-Spanish condition, $p<.05$.

**C-4**

**The effects of verbal humor on memory of visual symbols**

*Masanobu Takahashi, Tomoyoshi Inoue*

In Experiment 1, Labeling Group remembered more droodles than No-labeling Group in accordance with previous research. In Experiment 2, the type of labeling was manipulated (that is, Objectively descriptive, Neutral, and Humorous labeling). The results demonstrated that Humorous labeling Group showed better performance than the other two groups.

**C-5**

**Issues in Using a Commercial, Private-Pay Home Care Service as a Voluntary Study Group for Memory and Aging**

*David Metcalf, Michael Wilson*

In an effort to define realistic populations for the study of age-related cognition function, private home care services present a potential study group that merits further analysis. This session is designed to open early feedback on the use of this demographic as representative of a population with diminishing ability to perform memory-related IADLs.

**C-6**

**The implications of verbal overshadowing for computer interface design**

*Daryl Hepting, Katherine Arbuthnott*

We examined whether performance using scientific visualization software is influenced by verbal or pictorial format of the interface, as predicted if verbal overshadowing generalizes to the domain of computer software. With a pictorial interface, participants showed more complete coverage of the graphical search space, as well as more efficient performance.

**C-7**

**Directed forgetting and retrieval induced forgetting in schizophrenia**

*Mihály Racsmány, Martin A. Conway, István Szendi, Csaba Pléh*

23 ambulant schizophrenic patients took part in a series of memory experiments. The patients, all who were in inter-episodic state, showed serious executive disorders as diagnosed by the Wisconsin Card Sorting Task (WCST). Comparing their results to a control group matched on chronological age and intelligence scores, schizophrenic patients produced impaired directed forgetting in the experiment using the list method of this paradigm. In contrast with the result of the intentional forgetting experiment, schizophrenic patients produced a preserved retrieval-induced forgetting effect using the procedure of Anderson et al. (1994). Our results give evidence that these two widely used inhibitory memory paradigms involve different processes which that may dissociated in special clinical groups.

**C-8**

**The correlation between action memory and verbal memory in the serial position curve**

*Yuichi Kaji. Yasuhiro Hanada, Makiko Naka*

The purpose of this study was to see the within-subject correlation between memory performance for Self-Performed Tasks (SPTs) and that for

Verbal Tasks (VTs). Although there was significant correlation in the primacy position, no correlation was found for the middle and recency positions.

**C-9**

**Japanese normative measures for 359 line drawings**

*Takehiko Nishimoto, Kaori Miyawaki, Takashi Ueda, Yuko Une, Masaru Takahashi*

This study provides Japanese normative measures for 359 line drawings, including the 216 drawings taken from Snodgrass and Vanderwart (1980). The pictures have been standardized on naming time, name agreement, age of acquisition, and familiarity. The data was compared with English, Spanish, French, and Italian samples reported by the previous studies.

**C-10**

**The influence of using external memory aid on memory for schedule: A comparison with memory for object name**

*Jun Kawaguchi, Hama Watanabe*

We examined the influence of diary format on memory for schedule in comparison with memory for object name. It was shown that the format of note influenced on memory for schedule but not on memory for schedule. We discuss about the role of external memory in cognitive processes.

# Decision Making and Jury Decision Making

**D-1**

**Should task information be shared or distributed in a team?**

*Adrian Banks, William McKeran, Lynne Millward*

The effect on productivity in a simulated process plant of sharing or distributing task information amongst a team was investigated. Performance was similar under normal operating conditions. However, when an unexpected fault was introduced, performance in teams with distributed information was reduced significantly more than those with shared information.

**D-2**

**The impact of psychological expertise and empathy on jurors` perception in a criminal trial**

*Natascha Rainis, Catherine Denève*

Mock jurors read a trial transcript of a criminal case. A factorial design was used with 1) different types of psychological expertise and 2) different empathy inducing instructions. Results indicated that these variables hadn't an equal impact on jurors` verdict and perception of the expert and of his report.

**D-3**

**Naturalistic decision making: A cognitive task analysis of naval weather forecasting**

*Susan Joslyn, Karla Schweitzer, Earl Hunt*

We present a cognitive task analysis of naturalistic decision making under time pressure in weather forecasting. The verbal protocols of four naval forecasters, engaged in a typical forecasting task, revealed characteristics of their mental representation of the weather, goal structure and understanding of the uncertainty inherent in some information sources.

**D-4**

**Jury deliberations: Examining the impact of pretrial publicity on jury discussions**

*Lorraine Hope, Amina Memon, Peter McGeorge*

Examining the impact of negative pretrial publicity on deliberations of mock jurors, participants discussed trial evidence in jury groups having received differing levels of exposure to prejudicial pretrial information. Verdicts demonstrated a leniency bias while analysis of deliberations suggested that mention of publicity related items went unchecked by the jury.

**D-5**

**The effect of cross-examination on mock jurors` perceptions in a simulated case of child sexual abuse**

*Rachel Zajac, Emma Skellem, Harlene Hayne*

We examined the effect of lawyer questioning style and child allegation retraction during cross-examination on mock jurors' perceptions of a simulated child sexual abuse case. Although these two manipulated variables affected some aspects of jurors' decision-making processes, they did not influence jurors' final verdicts.

# Eyewitness Testimony

**E-1**

**Measuring testimony: Credibility assessment through interpersonal reality monitoring**

*Kevin Colwell, Cheryl Hiscock-Anisman, Eric Sjerven, Amina Memon, Lance Nabers, Amanda Ground*

Currently, two systems are proposed for RM measurement: the Judgment of Memory Characteristics Questionnaire (Sporer, 1997), and Detail Tally (Colwell, Hiscock-Anisman, and Memon). The present investigation applies each of these mechanisms to discriminate honest from deceptive testimony of students involved in a small theft. Overall and relative performances are discussed.

**E-2**

**In the line of fire: Eyewitness memory for emotionally arousing events**

*Lynn Hulse, Juliane Schmid, Amina Memon*

This study explored the effects of emotional arousal and delay on memory for a witnessed event using a relatively naturalistic method. Participants interacted with a filmed incident presented via a police training simulator. Recall for event details was this study explored the effects of emotional arousal and delay on memory for a witnessed event using a relatively naturalistic method. Participants interacted with a filmed incident presented via a police training simulator. Recall for event details was tested with the Cognitive Interview either immediately or after 48 hours, tested with the Cognitive Interview either immediately or after 48 hours.

**E-3**

**Exploring composite production and its subsequent effects on eyewitness memory**

*Lisa Topp, Dawn McQuiston, Roy Malpass*

**E-4**

**Factors influencing the content credibility of investigative interviews with children who allege sexual abuse**

*Loretta Berti, Graham Davies*

In the current study, transcripts of 45 interviews with children alleging sexual abuse (30 girls and 15 boys, aged 4-12 years) conducted by trained officers were assessed for the number of different CBCA criteria, their strength and overall frequency, in order to assess the influence of factors such as age on the evidence.

**E-5**

**Eyewitness memory for vehicles and people in a simulated traffic accident**

*Malen Migueles*

We examined eyewitness memory in a simulated traffic accident. Recall and recognition of vehicle characteristics, and physical description and clothing/shoes/accessories of the people involved were assessed. The subjective experience accompanying recovery was also analyzed using the Remember/Know/Guess paradigm.

**E-6**

**Eyewitness description enhancement techniques: Assessment of guided memory and structured interview techniques with varied time delays between event and interview**

*Laura A. Zimmerman, Roy Malpass*

This research assessed the use of the guided memory interview, a context reinstatement technique, to enhance eyewitness recall of perpetrator characteristics and crime events. This technique was compared to the structured interview, which enhances social communication techniques. These interview techniques were administered after 20 minute or two day delays.

**E-7**

**Eyewitness for an unexpected event observed live**

*Josefa N. S. Pandeirada, Pedro Albuquerque, Clàudia Sousa, Paulo Rodrigues*

One of the main criticisms on eyewitness memory studies is their lack of ecological validity. This study shows clearly that, even for events observed live, people make a substantial number of false memories and, despite realizing they did not paid much attention to the event, they report a high confidence on their responses.

**E-8**

**The effect of repeated testing on true and false memories**

*Katsuya Tandoh*

The purpose of this study is to examine the effects of repeated testing on true and false memories using Deese/Roediger-McDermott lists. Participants were asked to study and recall 6 DRM lists. Before final recall test, they were asked to recall some of studied items repeatedly. The results showed that repeated testing facilitated tested items but did not affect recall of untested true and false memories.

**E-9**

**Retention interval and type of content effects on accuracy-confidence relationship**

*Pedro Manuel Paz Alonso, Izaskun Ibabe, Jaoquín De Paúl*

Eyewitness research has shown that the confidence-accuracy relationship can be obtained under certain conditions. The present study investigated the role of retention interval and type of content on confidence-accuracy relationship in an eyewitness task. Immediate recognition increased the relationship between confidence and accuracy. Moreover the type of content was a moderator of the relationship between accuracy and confidence.

**E-10**

**Remembering automobiles and their speed**

*Ellena Adams, Dan Wright*

Police investigators are interested in two main aspects of memory regarding automobiles. The first is people estimating how fast an automobile was traveling. The second is whether people remember seeing a particular automobile. We report preliminary studies on each of these topics.

**E-11**

**The effect of distributed learning on the identification of disguised voices**

*Erica Procter, A. Daniel Yarmey*

The impact of distributed presentations on the identification of normal and whispered voices was examined. Earwitness performance was better for normal voices. There was an interaction between frequency of exposure and tone of voice. The relationships between accuracy and confidence, and accuracy and remember and know responses, were assessed.

# Face Perception and Identification

**F-1**

**Description and identification: Making witnesses more conservative**

*Joseph Clare, Stephan Lewandowsky*

Two experiments have been conducted examining the influence of verbalization on identification accuracy. Through the manipulation of the witnesses` response criterions, the verbal overshadowing effect is both replicated and removed. This pattern of results is well accounted for by the WITNESS model (Clark, in press), and further supported by an evaluation of previously published research.

**F-2**

**Eyewitness identification: Arousal and accuracy comparing victims versus bystanders**

*Kim Gaitens, Roy Malpass*

The purpose of this study was to examine the effects of arousal and attention during a live crime scenario on the recall and recognition accuracy of victim and bystander witnesses. Results are discussed in terms of implications for future interviewing and identification techniques based on different witness types.

**F-3**

**Investigating the forensic value of the EFIT facial composite programme**

*Fiona Gabbert, Paul Dupuis, Rod Lindsay, Amina Memon*

Four experiments evaluated the forensic usefulness of the Electronic Facial Identification Technique (EFIT). Experiments One and Two found that younger eyewitnesses produced better quality EFITs. Experiment Three found that better quality EFITs did not facilitate identification of the target. A fourth experiment investigated whether witnesses who had provided a good description had also constructed a good EFIT.

**F-4**

**Eyewitness identification in the developmentally delayed**

*Marguerite Rodgers, John Yuille*

To test ability for eyewitness identification, developmentally delayed and control participants underwent a scripted interactive encounter with a confederate. Two weeks following the interactive encounter, participants were asked to identify the person they had dealt with in the interactive encounter. Preliminary results indicate that developmentally delayed participants are as accurate as controls, but tend to guess more in the target-absent line-ups.

**F-5**

**A technique to enhance person description**

*Samuel Demarchi, Jacques Py, Magali Ginet*

Police officers, judicial officials or lawyers willingly admit that descriptions of perpetrators are extremely vague. The present set of four studies show, however, that instructions based on natural strategies used in this kind of task-report can improve person recall (as Cognitive Interview does with event recall).

**F-6**

**Multiple independent lineups can result in perfect diagnosticity of guilt and innocence**

*Melissa A. Boyce, Rod Lindsay, Paul Dupuis*

This study used multiple independent lineups of face, body, voice, body profile, and face to calibrate identification accuracy. Participants were exposed to either simultaneous or sequential target present or target absent lineups. As the number of selections of the target increased, perfect diagnosticity of guilt was achieved.

# Suggestibility

**G-1**

**Recovered memory or created memory? A content analyses of testimony**

*Makiko Naka*

We analyzed 119 records of police interview of a woman, who first claimed had no memory of suspected murder but after eight-month consecutive interview, recalled vivid memories of murdering a man. Criteria-based content analyses was conducted using the conditions known to foster the creation of false memory as criteria (e.g., social pressures, repeated remembering, image inflation), which revealed the memories were questionable.

**G-2**

**Suggestibility, theory of mind, and executive functioning in preschool children**

*Mathew Scullin, Karri Bonner*

We examined the relationship between Video Suggestibility Scale for Children (VSSC) scores, theory of mind (TOM), executive functioning (EF), and suggestibility when 3- to 6-year-old children were repeatedly suggestively interviewed about an event. We hypothesized that among children who pass TOM and EF tasks, the VSSC will predict suggestibility.

**G-3**

**The effect of post-event information as impressions from another eyewitness**

*Masakazu Maruyama, Mariko Nishi, Yukio Itukushima*

The effect of post-event information from someone who was in the same situation as the participants was examined. The participants were shown a series of slides and given post-event information as impressions by previous participants. The post-event information was given by different form in two experiments (VTR or printed-paper).

**G-4**

**False memories in children: Adapting converging associates to children's age**

*Paula Cameiro, Pedro Albuquerque, Angel Fernández, Francisco Esteves*

The present study analyses false recall and false recognition rates in children of different age groups applying the Roediger & McDermott (1995) paradigm and using semantic associative lists specifically developed to each age group.

**G-5**

**Failing a false belief test - a predictor for false consents among preschool children**

*Yvonne Thomsen, Dorthe Berntsen*

Thirty-nine preschool children were questioned repeatedly about a real and a fictive event. The absence of a Theory of Mind was a better predictor for consents to false events than age, number of interviews and fantasy-reality distinction. Repeated questions were related to dropping of erroneous names, forgetting and source-monitoring errors.

**G-6**

**Warnings and the social contagion of false memories**

*Michael P. Toglia, Elizabeth Preston, Jeffrey Neuschatz, Joseph Neuschatz*

Two experiments addressed social contagion in naturalistic environments. After a confederate falsely reported items during collaborative recall, participants falsely recognized these items more often than control participants and "remembered" contagion and studied items at similar rates. Warnings about the confederate's inaccuracies reduced social contagion immediately, but not a week later.

**G-7**

**How many false traces make a false memory?**

*Francis T. Durso*

How many times did participants think they heard sleep in a DRM list? Participants heard words from various DRM lists presented various numbers of times and in various study and test organizations. I'll discuss different views on the representation of false memories and apply them to the frequency judgments.

**G-8**

**False Confessions**

*Dirk Franssens, Gjalt-Jorn Peters & Robert Horselenberg*

In a partial replication of the Kassin & Kiechel (1996) study, the severity of the consequences of confessing and the plausibility of having performed the accused-of action were manipulated. Both tendency to confess and internalization were assessed.

**G-9**

**Influence of misinformation from a recognition test on recall report**

*Izaskun Ibabe, Pedro Manuel Paz Alonso*

Testing memory is not simply a matter of taking a reading on the witness's memory representation: it also alters future memory reports for the same event. This study examined whether a true-false test influenced the rate of errors in a later free recall report. Witnesses who took a previous recognition test produced more incorrect recollections of the event in the subsequent recall test than witnesses who did not take the test.

**G-10**

**The effect of imagining the original event in eyewitness testimony and source monitoring**

*Ai Uchikoshi, Makiko Naka*

Many studies suggest image increases the suggestibility effect. However some forensic studies have suggested that imagining the original event would increase the correct recall. We speculated that the differences between these results arise from the procedures where one is asked to image the post information or the original event. The purpose of this study was to seek for the conditions where imagining help people remember the correct information about the original event.

**G-11**

**Influence of encoding time for memory of the emotional event: source monitoring approach**

*Sachiko Kenmotsu, Yukio Itsukushima, Masako Yamashita*

To explore the nature of the memory for emotional events, misinformation paradigm and source monitoring test were introduced to the present experiments and encoding time of the original event was controlled. The results indicated that shorter encoding leads to more attribution errors in emotional and misinformation conditions than neutral and non-misinformation condition.

**G-12**

**Dissociation: A manifestation of fantasy proneness and susceptibility to cognitive failures**

*Timo Giesbrecht, Harald Merckelbach*

Research on dissociation commonly relies on self-reports This experiment employed the standard stroop task (Stroop, 1935) combined with a surprise free-recall task and a dual-task stroop task (DePrince & Freyd, 1999) to investigate the phenomenon of dissociation.

# Cognition/Cognitive Development

**H-1**

**Cultural difference in emotion and coping in stories**

*Kelly A. Marin*

This study explored cultural differences in story construction of 50 American and Mexican female students regarding cognitive representations of

a negative event. Students completed three fictitious stories in response to one sentence prompts of implied aversive events. Narrative content analysis focused on three aspects of the stories: the inclusion of other people, emotional content and coping strategies.

**H-2**
### What neonatal imitation tells us about neonatal memory?
*Emese Nagy, Peter Molnar*
In our studies, searching for the mechanism of neonatal imitation resulted in the discovery of neonatal initiative capacity, called "provocation" or the first deferred imitation. During 'provocation' human neonates spontaneously produced previously imitated gestures even longer than two minutes delay after the gesture of the experimenter. These deferred imitation acts were accompanied by different psycho-physiological patterns from immediate imitation acts.

**H-3**
### The consumption of executive resources during stereotype suppression
*Sheila Cunningham, Alan Milne*
This study investigated the circumstances in which executive resources are consumed by stereotype suppression. A probe reaction test revealed that suppression consumed resources when low-stereotypic information was being encoded, but ironically released executive resources during the encoding of high-stereotypic information. This effect may be due to stereotype priming during suppression.

**H-4**
### The role of trust in safety & risk perception
*Calvin Burns*
A questionnaire and computerized priming task were used to measure explicit and implicit attitudes, respectively, about the trustworthiness of participants' workmates, supervisors and senior management at a UK gas plant. A different pattern of results emerged for explicit and implicit attitudes about trust. Implications for the organization's safety culture are discussed.

**H-5**
### Neural plasticity in older adults in response to a period of increased mentally stimulating activity
*Lesley Tranter, Wilma Koutstaal*
A period of increased mentally stimulating activity was postulated to improve cognitive performance of elderly adults. Groups were tested on several measures pre- and post-test; one (experimental) carried out activities. Results showed greater pre/post-test gain, in the experimental group, on a measure of fluid intelligence and a performance measure.

**H-6**
### Motion tracking as a non-verbal method for studying human behavior
*Brian Newby, Gill Beesley, Andrew Stewart, Mark Wright*
We report on the use of motion tracking as a method for studying the behavior of consumers interacting with an aerosol deodorant spray. The use of this technique enabled the identification and measurement of very small differences in behavior within a user (use of different products) and between users.

**H-7**
### First grade teachers' memory-relevant talk: Linkages to children's memory performance
*Jennifer L. Coffman, Peter Ornstein, Laura McCall*
Formal schooling - and first grade, in particular - has been shown to influence the growth of children's memory skills. We examine one aspect of the first grade environment, the nature of teachers' memory-relevant talk, and its relation to children's memory performance on a battery of memory tasks.

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## SATURDAY, JULY 5TH

**Auditorium**
**SYMPOSIA 8:45 - 10:00 a.m.**
**Order and disorder in autobiographical memory:**
**The role of self and emotion**
**Chairs: AMANDA J. BARNIER, MARTIN A. CONWAY**
**Contact: A.Barnier@unsw.edu.au**
**Keywords: Autobiographical memory, Memory disorder.**

This symposium focuses on self and emotion in autobiographical memory. We consider not only what people remember or forget from the past, but how they experience and react to their memories. The papers comment on how intentional forgetting may shape the self, hypnotically-created disruptions of personal memory, intrusive images in agoraphobia, and the nature of déjà vu experiences. From experimental studies to laboratory analogues, clinical comparisons to single case studies, the presenters address theoretical questions on the motivational basis of autobiographical memory, discuss the methodological challenges investigators face in this area, and highlight the clinical relevance of disordered remembering.

### Directed forgetting of autobiographical memories: Shaping the self
*Martin A. Conway*

This paper describes a program of research that extended the investigation of inhibitory memory control from simple, episodic information to autobiographical memories. In five list-method directed forgetting experiments, participants generated specific memories in response to either neutral cue words (Expts. 1-2) or positive, negative, and neutral cue words (Expts 3-5). After generating memories to half of the cues, we instructed participants to either forget the cues and memories recalled so far (forget group) or to try to keep them in mind for later recall (remember group). We told both groups that they would have to remember all cues and memories presented and generated after the mid-list instruction. Following filler tasks, participants tried to recall all the memories they had retrieved in the study phase, regardless of mid-list instruction. We found that recently recalled autobiographical memories can be influenced by a direct instruction to forget, much like simple word lists; individuals in the forget group recalled fewer targeted memories than individuals in the remember group. However, we identified three boundary conditions on this effect: (1) inhibition was enhanced by segregation, but compromised by integration, of the to-be-forgotten and to-be-remembered material; (2) inhibition was relatively unsuccessful for emotionally negative experiences; and (3) neither the initiation nor the effects of these inhibitory processes appeared under intentional control. These findings are discussed in terms of inhibitory processes in directed forgetting, our understanding of concepts such as repression, and the role that memory management processes play in shaping normal and pathological selves.

### Hypnotic disruptions of autobiographical memory and self
*Amanda J. Barnier, Rochelle E. Cox*

Like their clinical counterparts, hypnotic amnesia and hypnotic identity delusion involve alterations in memory and self that are compelling to the individual, maintained in the face of challenge, and served by selective information processing. These features are illustrated by two experiments. In Experiment 1, we asked high and low hypnotizable individuals to describe positive or negative "first date" memories, and during hypnosis administered a posthypnotic amnesia suggestion for these events. After hypnosis, we indexed (explicit) recall of the targeted memories as well as their (implicit) impact on participants' interpretation of an ambiguous first date story. Whereas highs, but not lows, showed significant forgetting of the targeted memories, these events influenced both highs' and lows' interpretation of the ambiguous story, but in different directions. In Experiment 2, we gave highs and lows a suggestion that they would became one of their same-sex siblings (self-delusion) or that they had an extra, nonexistent same sex sibling (other-delusion). During this experience, we asked participants to generate personal semantic information (viz., name, age, appearance, likes, dislikes) and specific autobiographical memories. Highs were more likely than lows to experience the suggestion (as indicated by changes in reported name, age, and appearance); also, they were more likely to generate specific (rather than general) memories. Notably, participants indicated that their delusional recollections reflected reinterpretations of past events and information, rather than complete confabulations. These findings are discussed in terms of the conceptual and methodological value of hypnosis to investigations of normal and disrupted autobiographical memory.

### Intrusive images in agoraphobia: Anxiety, autobiographical memory, and self
*Emily Holmes, Samantha Day*

Although some clinical disorders involve forgetting, anxiety disorders involve involuntary recollection of unwanted images and memories. In the first study of its kind, we examined intrusive images in agoraphobia; we indexed their frequency, consequences, thematic content, and relationship to memories of the self. Agoraphobia involves anxiety of situations in which escape is perceived to be impossible or help lacking; in severe cases, individuals who avoid anxiety-provoking situations may become house-bound for decades. In this study, we asked 20 adults with agoraphobia and 20 matched controls to describe intrusive images experienced in agoraphobic situations (e.g., leaving the house). We also asked participants to generate any autobiographical memories strongly associated with the images. All agoraphobic, but no control, participants reported repetitive, aversive images related to their agoraphobic situations (e.g., seeing themselves curled up and vilified); 75% believed that the image/s influenced their anxiety levels in these situations. Notably, most agoraphobic participants linked their images to a specific (often negative) memory from the past, which occurred years and sometimes decades previously. However, only 15% reported that they had thought recently about this memory. Qualitative analysis indicated that both images and memories were dominated by themes of catastrophic danger and a negative view of the self (e.g., the self as intimidated, humiliated, misunderstood). We discuss the clinical relevance of these (conscious and unconscious) links between intrusive images, autobiographical memory, and the self. We argue that treatment strategies for agoraphobia must consider how the self is represented in, and influenced by, personal images and memories.

### The reduplicative self: Episodic memory in patients with persistent déjà vu
*Chris J. A. Moulin, Rebecca Thompson, Martin A. Conway*

Investigations of neurological impairment have been used by cognitive neuropsychologists interested in the structure and function of human memory. By applying cognitive models of memory to people with memory difficulties, the understanding of their condition and the care available has been greatly enhanced. As mainstream cognitive research now considers the subjective experience of memory in normal populations, and how this influences behaviour, it is possible to explore the experience of people with memory dysfunction in order to understand the subjective qualities of memory and the sensation of memorising itself. In this paper, we present two cases with a persistent sensation of déjà vu and memory impairment. We present data from a number of experiments, which focus on the recollective experience paradigm. Results from this research show that the patients tend to 'Remember' stimuli that they have never encountered. We describe this as recollective confabulation, driven by the need for the self to justify the erroneous sensation of retrieval. We argue that these cases illuminate our understanding of recollective experience and the higher-order processes that characterise the sensations associated with memory retrieval. In particular, we

describe how the subjective sensations of memory retrieval drive daily activities and the self-memory system.

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**KCF7**
**PAPER SESSION 8:45 - 10:00 a.m.**
**Interviewing**
**Chair: ROBYN HOLLIDAY**

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**Disentangling the effects of imagery on memory accuracy**
*Rhonda Douglas Brown, Kim Roberts, Luanne Carr*
Simple and complex words and pictures were presented to 96 adults assigned to three imagery conditions. Results revealed that participants who were instructed to use imagery, but were not told what to image demonstrated greater correct recall, but more misses on recognition than participants who were instructed to form specific images.

**The effects of interviewer's support on children's production in sexual abuse investigations**
*Irit Hershkowitz, Eila Perkis*
This study explored the effects of the interviewers` social support on the amount of information provided by children in sexual abuse investigations. A psycho-linguistic analysis of 70 forensic interviews with children revealed that interviewers` open-ended utterances including supportive words evoked more central details from children than other open-ended utterances.

**Testing the efficacy of the cognitive interview in a developing country**
*Lilian Milnitsky Stein, Maria Lúcia Nygaard, Mariana Lima, Leandro Feix*
The efficacy of the Cognitive Interview was tested in a developing country with poor and uneducated witnesses. Sixty women were randomly assigned to watch a video of an abduction simulation and later tested using either the CI or a structured interview. More correct details were reported with the CI condition.

**First application of the Video Suggestibility Scale for Children (VSSC) to the Italian context**
*Adele Cavedon, Carolina Mega, Silvia Mocellin*
For the first time the VSSC Scale has been applied to Italian pre-schoolers.Three-4 and 5 year-olds were administered the test either two days or a week, after they had seen the film. Results are consistent with those obtained in the US.

**Positive effects of repeated interviews: The case of child sexual abuse investigations**
*Irit Hershkowitz, Ana Terner*
This study explored the effects of repeated interviews with 40 (4-12 years old)children, alleged sexual abuse victims. a detailed psycholinguistic analysis revealed that second statements were found richer in substantive central and free recall details and more organized on several measures. The findings stress positive effects of repeated interviews.

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**KCF8**
**PAPER SESSION 8:45 - 10:00 a.m.**
**Face perception**
**Chair: ARTHUR SHIMAMURA**

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**Memory for facial expressions: The power of a smile**
*Arthur P. Shimamura*
Memory for facial expressions was assessed by presenting surprised, happy, fearful, angry, and neutral faces. At test, the faces were shown with neutral expressions, and participants determined the expression that the face exhibited during study. In three experiments, happy faces were remembered significantly better than angry, fearful, or surprised faces.

**Hindsight is 20/20: Visual hindsight bias in celebrity-face identification**
*Erin M. Harley, Geoffrey Loftus*
Can an observer with image information accurately predict visual performance of a naïve self or peer? Participants identified degraded images of celebrity faces as they clarified, and later either recalled their identification point, or predicted performance of a naïve peer. Participants consistently overestimated performance of naïve observers. Implications for medical malpractice litigation and eyewitness testimony are discussed.

**Age effects in verbal person memory**

*Torun Lindholm*

This research explored same-age biases in young adults', old adults' and childrens' verbal person memory. Results demonstrated age effects that followed the same asymmetric interaction pattern as has been reported in face recognition studies. This suggests that group effects found in face recognition generalize to other forms of person memory.

## Meta-analysis: The effects of transformation on facial recognition
*Meera Adya, E. Kiernan McGorty, Aletha Claussen-Schulz, Valerie J. Franssen, Steven D. Penrod, Brian H. Bornstein*

A meta-analysis of a subset of the eyewitness literature is proposed. Studies manipulating disguise and other transformations (e.g., change in context and pose) of the target will be presented. Analyses on hits, false alarms, d', B" (measures of sensitivity and response criterion), and moderator variables (where appropriate) will be presented.

## Unconscious transference from mug shot searches: Does it really exist?
*Jennifer E. Dysart, Rod Lindsay, M. Sinclair*

Previous research examining the effects of viewing mug shots on identification accuracy has yielded inconsistent results. The present study (N=225) examined whether the number of mug shots viewed has an effect on the unconscious transference effect. Five conditions were used: 16 mugs with one day or one week delay, two conditions with 400 mugs, and control. No evidence was found for the unconscious transference effect.

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**Auditorium**
**SYMPOSIA 10:20 - 11:35 a.m.**
**Inhibitory mechanisms in memory**
**Chairs: MALCOLM D. MACLEOD, INEKE WESSEL**
**Contact: mdm@st-andrews.ac.uk**
**Keywords: Autobiographical memory, General memory, Inhibition.**

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Recent studies on retrieval-induced forgetting reflect the current explosion of interest in inhibitory mechanisms in memory. As studies in this field increasingly encompass more applied settings, their potential to shed light on issue of fundamental theoretical importance is being recognised. In this symposium we consider the latest studies in this field. First, we explore the retrieval conditions necessary for retrieval-induced forgetting. We then evaluate its relevance to our understanding of memory and ageing; its consequences for autobiographical memory and potential clinical implications; and, finally, its effects on the reliability of eyewitness memory via the production of misinformation effects.

## Episodic and semantic inhibition in retrieval-induced forgetting
*Mihály Racsmány, Martin Conway*

Four experiments examined the proposal that selecting an item for retrieval from long-term memory causes inhibition of highly associated competing items. In the first three experiments there was a study phase in which a list of category-exemplar pairs, e.g. Fruit-Orange were learned, a retrieval practice phase in which a subset of list items were recalled to category-plus-stem pairs, e.g. Fruit-Or_____?, and a recall phase that included category cued recall and lexical decision tests. Powerful retrieval induced forgetting effects were found in all three experiments and highly associated unpractised items were consistently recalled to the lowest levels. Retrieval induced forgetting effects were not present in lexical decision latencies unless the test contained strong cues to the study phase. In a fourth experiment the retrieval practice phase was substituted by a category generation phase in which exemplars not previously studied were generated to category cues taken from the study phase, e.g. Fruit-A____? Under these conditions recall of the studied list showed no inhibition. This pattern of findings suggests that retrieval-induced forgetting is mediated by an episodic memory of the study list in which a particular pattern of activation/inhibition has been established by retrieval practice. In contrast, lexical decision performance and category exemplar generation, when these do not entail access of a memory of the study list, are mediated by semantic representations in which study list items are not inhibited.

## Retrieval-induced forgetting in normal ageing
*Malcolm MacLeod*

Recent research has focused on the role of inhibitory mechanisms in memory and, in particular, the adaptive consequences of active forgetting for the retrieval of desired material. This paper considers the findings from a recent study that explores the extent to which decrements in this adaptive function (i.e., cognitive inhibition) are related to memory performance in older age. Although it widely accepted that older adults experience a reduction in inhibitory function, paradigms typically employed to measure this have often failed to provide a clean measure of cognitive inhibition. The retrieval-induced forgetting paradigm, in contrast, offers a relatively 'pure' measure and is therefore ideal for exploring the extent to which inhibitory deficit models of cognitive ageing have validity.

To this end, 100 participants ranging in age from 19 to 85 years underwent a series of memory performance, intelligence and verbal ability tasks. The ability to inhibit related material in memory was measured by two retrieval-induced forgetting tasks: one involved the free recall of items previously presented in word lists, the other involved the recall of pictorially presented images cued by partial image fragments. Contrary to predictions, there was no obvious loss of ability to inhibit related material in memory with increasing age. Older adults were found to perform at

a rate comparable to that observed for younger adults in both retrieval-induced forgetting tasks. The consequences of this finding for the adaptive function of inhibitory mechanisms in memory are considered and its significance for models of cognitive ageing evaluated.

## Retrieval-induced forgetting and autobiographical memory
*Ineke Wessel*
One puzzling observation in clinical psychology is a link between intrusive traumatic memory and overgeneral autobiographical memory. That is, paradoxically, in some patients a hyper-accessibility of memory for one (series of) event(s) goes hand in hand with a scarcity of memories for other personal experiences. This clinical observation is reminiscent of the laboratory phenomenon of Retrieval-Induced Forgetting (RIF). RIF refers to the observation that when some stimuli are repeatedly recalled, subsequent recall of related (i.e., tied to the same retrieval cue) stimuli is impaired. RIF of emotional autobiographical memories might provide an experimental model for clinical memory phenomena. However, although RIF was reported frequently for a variety of experimental stimuli, no studies relying on autobiographical memory were published as yet. The present study explored RIF for personal memories. Forty-eight students wrote down personal memories. Ten positive and 10 negative memories (matched for emotionality ratings) comprised the stimulus material in a separate RIF session. Four phases were administered: 1) a study phase re-presenting idiosyncratic memories; 2) a retrieval practice phase inviting repeated recall of either half of positive or half of negative memories; 3) an unrelated filler task and 4) a cued recall test.
The RIF-effect consists of poorer recall of related non-practiced items (i.e., from the practiced valence category) than unrelated non-practiced items (i.e, from the other valence category). Preliminary results showed this RIF-effect to be small and nonsignificant. In addition, no interactions with emotion type emerged. Implications of these findings for RIF research and clinical psychology will be discussed.

## Suggestibility through susceptibility: Inhibitory processes in the misinformation effect
*Jo Saunders, Malcolm MacLeod*
Recent research suggests that retrieval-induced forgetting may play a role in the production of misinformation effects. But do inhibitory or non-inhibitory processes underlie these effects? A series of experiments are reported which set out to explore this issue. Following the presentation of narratives about two burglaries, participants performed retrieval practice on half of the items from one of the incidents. The independent probe technique was employed in order to determine whether inhibitory processes could account for any observed effects. Misinformation was then introduced either on i) Rp-items; or ii) Nrp items that were semantically similar to Rp+ items; or iii) Nrp items similar to Rp- items; or iv) Nrp items semantically dissimilar to the practiced incident. In a control condition, misinformation was also introduced on items where no relevant retrieval practice had occurred.
Two findings strongly support an inhibitory interpretation: (a) retrieval-induced forgetting was demonstrated with the use of independent retrieval cues indicating that inhibitory processes were responsible, and (b) that misinformation effects were apparent when misinformation was introduced for Rp- items and also for Nrp items similar to either Rp+ or Rp- items (i.e., items that were subject to cross-category inhibition). These effects, however, were not apparent for Nrp items that were semantically dissimilar to either Rp+ or Rp- items. Implications for interviewing practice are explored and the role of inhibitory mechanisms in memory discussed.

**Discussant:** *Buz Hunt*

**KCF7**
**SYMPOSIA 10:20 - 11:35 a.m.**
**Detecting false or inaccurate evidence in child witnesses**
**Chair: VICTORIA TALWAR**
**Contact: talwar@psyc.queensu.ca**
**Keywords: Child witness, Eyewitness testimony, Face identification and perception.**

With more young children testifying in court, researchers are seeking to address questions about the accuracy and veracity of their testimony. The present symposium brings together four new studies examining issues related to detecting and reducing false or inaccurate evidence in child witnesses. The first two studies examine procedures that affect children's line-up identification accuracy. The last two studies examine children's lie-telling abilities and their relation to truth-lie discussions in both reducing lie-telling and facilitating detection of lies. This symposium provides a forum to discuss theoretical and practical issues related to the accuracy and veracity of child witness testimony.

## An identification procedure for pre-schoolers: Multiple slow elimination lineups
*V. Heather Fritzley, R. C. L. Lindsay*
Very few identification procedures are effective with child witnesses. Children tend to produce more false positives than adults (Pozzulo & Lindsay, 1998). Slow elimination lineups (Pozzulo & Lindsay, 1999) require the witness first to eliminate lineup members one at a time until only one remains and then to decide if the "survivor" is the person previously seen. Slow elimination lineups are not an effective identification procedure with children younger than 7 (Lindsay, 2000); however, early elimination is diagnostic of innocence (Fritzley & Lindsay, 2001; Fritzley & Lindsay, 2002). The present study tested the diagnostic utility of combining multiple slow elimination lineup procedures (face, body, facial profile, and voice) in order to provide identification evidence from younger witnesses (2 to 5 year olds). The data were treated as ranking

the similarity of the features of each lineup member to the child`s memory for the target. The rankings were summed across lineups. Summed ranks in the lowest third of the distribution were associated with a .13 probability of "guilt". Summed ranks that fell in the middle third of the distribution were associated with a .61 probability of guilt. Finally, summed ranks in the top third of the distribution, were associated with a .72 probability of guilt. Summing the rankings across four different slow elimination lineups results in a measure that is indicative of the guilt or innocence of the suspect. This research provides a promising start on the development of an identification procedure that may result in meaningful identification evidence from pre-schoolers!

Children are more likely than adults to make a false positive identification from a target-absent line-up (i.e. the criminal is not present; the suspect is innocent; Pozzulo & Lindsay, 1998). A two-judgement theory of identification accuracy has been proposed to better understand identification decisions (Pozzulo & Lindsay, 1999). This model postulates that an accurate identification decision is achieved by first making a relative judgement (i.e., compare across lineup members and select the member that most looks like the criminal) followed by an absolute judgement (i.e., compare the most similar lineup member to your memory of the criminal). It was hypothesized that children are less likely to complete this process, thus producing greater false positives than adults. Lineup viewing time was manipulated to test this hypothesis. It was predicted that false positives would increase when adults had limited time versus unlimited time to view a lineup, thereby interrupting their decision making and only allowing the completion of the relative judgement. In contrast, it was predicted that children's false positive rates would not differ across viewing time conditions. Children (N = 60, 9 to 11 years) and adults (N = 60) were shown a staged, videotaped theft. Participants described the crime and criminal. Participants were randomly assigned to view a 6-person, target-absent, simultaneous lineup presented via computer display for 2 seconds versus unlimited time. Preliminary results are in line with the above predictions. Theoretical and applied implications of these results will be discussed.

### Concealing a parent's transgression: Children's lie and truth-telling behaviour
*Victoria Talwar, Kang Lee, Nicholas Bala, R.C.L. Lindsay*
Children`s lie-telling behaviour to protect a parent and their cognitive understanding of lying was investigated in four experiments (N = 46, 46, 45, 56). This study tested the assumptions of the court competence examination: 1) that there is a relationship between children's behaviour and their conceptual understanding 2) that the competence examination has a truth-promoting effect. Children (ages 3 -11) were asked by parents to conceal the parent`s transgression (breaking a toy). The first experimenter asked children questions about the transgression. Then a second experimenter asked children questions about the concepts of lies and truth (simulating court competence examination), and children were asked to promise to tell the truth. Then, the second experimenter questioned the child about the transgression. In Experiment 1 and 2, most children told the truth about their parent`s transgression. However, in Experiment 3 and 4, when the possibility of the children being implicated in the transgression was reduced, significantly more children lied to conceal their parents' transgression. Overall, there was no significant relation between children`s lie- or truth-telling behaviour and their conceptual understanding. In Experiments 1- 3 after the court simulation questioning, promise and repeat questioning, more children told the truth. In Experiment 4 when children were not asked about truth and lies or promised to tell the truth, there was no significant decrease in children's lie-telling behaviour. This suggests that asking children about lies and promising to tell the truth may increase the likelihood of truth telling. Implications for the justice system are discussed.

### Interview procedures and the detection of children's deception
*Amy May Leach, Victoria Talwar, Kang Lee, R.C.L. Lindsay, Nicholas Bala*
Despite increases in the number of child witnesses, even experienced officials have difficulty detecting children's deception. The present study examined whether the type of interview conducted would affect individuals' ability to identify lie- and truth-tellers. One hundred undergraduate students viewed video clips of children answering questions about having peeked at a forbidden toy and attempted to differentiate between the child lie-tellers and truth-telling controls. Prior to being asked about the transgression, children had either engaged in moral reasoning tasks, promised to tell the truth, or received no additional instructions. These interviews were presented under two conditions: 1) participants only viewed the critical questions; 2) participants viewed an extended interview that included a neutral exchange between the children and the experimenter. Participants were most accurate when rating moral discussion clips (M = .66), less accurate when rating promise clips (M = .56), and least accurate when rating direct interviews (M = .54), F (2, 188) = 47.73, p < .001. Providing participants with additional exposure to the children in a neutral context did not affect accuracy. Although there were no significant correlations between accuracy and confidence, participants tended to be most confident when rating moral reasoning interviews, F (2, 188) = 11.79, p < .001. These findings suggest that the length of an interview does not affect lie detection accuracy. Instead, the inclusion of a moral reasoning task may facilitate the detection of children's deception. Implications of these findings will be discussed in a legal context.

**Discussant:** *R. C. L. Lindsay*

**KCF8**
**PAPER SESSION 10:20 - 11:35 a.m.**
**Decision making - Jury decision making**
**Chair: CAROLE HILL**

### In the aftermath of pre-trial publicity: Examining the unexpected manifestations of positive and negative pre-trial information on mock juror decision making

*Lorraine Hope, Amina Memon, Peter McGeorge*
Two studies examined the impact of negative and positive pretrial information on attitudes towards defendants. Results demonstrated that participants exposed to negative information made significantly more negative attributions about the defendant's character, criminal propensity and likely recidivism. Findings are discussed with reference to confirmation bias, impression formation and social judgeability.

## Memory for trial facts: Lingual ability and need for cognition
*Scott E. Culhane, Harmon M. Hosch, John S. Shaw, III*
We examined the relation between bilingual jurors' retention of trial facts when testimony was presented in Spanish (translated by interpreter) or English. We also explored how jurors' verdicts were influenced by in-group or out-group membership with the defendant. Finally, Need for Cognition (NC) and memory for facts were tested.

## The role of guessing and boundaries in the telescoping of public events
*Peter James Lee, Norman R. Brown*
Two models explaining temporal estimation biases were compared. Participants provided knowledge ratings and date estimates for 64 news events. Removal of guesses reduced backwards telescoping of recent events, but forward telescoping of older events was unaffected. Boundary manipulations demonstrated differential biasing effects, suggesting multiple factors are responsible for dating biases.

## Estimating task completion times: Task experience and task duration affect temporal prediction bias
*Kevin Thomas, Stephen Newstead, Simon Handley*
This research investigated predictions concerning the duration of well-structured tasks. Results revealed that task duration (Experiment 1) and the extent of prior task experience (Experiment 2) influenced time prediction bias. Experiment 3 revealed that the type of shorter duration task performed beforehand affected prediction bias on a longer duration task.

## Risk, control and memory: Effects of specific emotions and event valence
*Heather C. Lench, Linda Levine*
This study assessed the effects of specific emotions on risk and control judgments and memory. Fear was found to reduce optimism but also reduced control perception and memory. People recalled information they were more optimistic for and perceived greater control over.

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**Auditorium**
**SYMPOSIA 11:40a.m.-12:55p.m**
**Beyond imagination inflation**
**Chair: MARYANNE GARRY**
**Contact: maryanne.garry@vuw.ac.nz**
**Keywords: Autobiographical memory, False memories, Suggestibility.**

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This symposium integrates three lines of false memory research. First, false memories can be created by [a] providing a description of a fictitious event said to have been supplied by a family member, and [b] producing a doctored childhood photograph, with no additional information. Second, imagining a fictitious experience can increase people`s belief that it was real. This symposium presents some missing pieces of the false memory puzzle: what is the relative power of a fictitious photo vs a fictitious narrative? What if a true photo were accompanied by a fictitious narrative? What is the effect of imagination on memory?

## "Mind the gap": Creating false memories for missing events
*Matthew Paul Gerrie*
For almost a decade, research has shown that people can come to remember events that never happened after repeated suggestions. Can people come to develop false memories of realistic, temporal events, without any suggestion at all? That question was the focus of an experiment in which subjects viewed a movie of a woman making a peanutbutter and jam sandwich. Some segments of the movie had been removed. After 24 hours, subjects were shown clips they had seen (old), clips that had been removed (missing), and new but related segments (control), and asked to identify clips they had seen and those they had not. Even though recognition for old clips was high, subjects falsely recognized missing clips more than they did controls. Subjects also "remembered" seeing old and missing clips at the same rate. In all, subjects remembered an additional 11 seconds (18%) of extra action from an event. False memories were unrelated to dissociative tendencies, suggesting that the effect is unrelated to source confusion. Overall, these results show that people can falsely remember entire blocks of time that they had never seen.

## Imagination alone can create false autobiographical memories
*Giuliana Mazzoni, Amina Memon*
Previous studies have shown that imagining an event can alter autobiographical beliefs. The current study examines whether it can also create false memories. One group of participants imagined a relatively frequent event and received information about an event that never occurs. A

second group imagined the non-occurring event and received information about the frequent event. One week before and immediately after the manipulation, participants rated the likelihood of occurrence of each of the two critical events and a series of non-critical events using a Life Events Inventory. During this last phase, participants were asked to describe any memories they had for the events. For both events, imagination increased the number of memories reported, as well as beliefs about the event`s occurrence. These results indicate that imagination can induce false autobiographical memories.

## Actually, a picture is worth less than 45 words
*Kimberley Wade*
The research examining the creation of false childhood memories in adults has exposed subjects to target false events via personalized and detailed narratives. Wade, Garry, Read and Lindsay (2002) replaced detailed, verbal information about a false event with a doctored photograph. Fifty percent of subjects created complete or partial false memories of taking a hot air balloon ride. In a follow-up study, we asked whether false photos or false narratives were more likely to elicit a false memory. Over 3 interviews, we asked subjects to work at remembering three real childhood events depicted in a mix of photographic and narrative form, along with a doctored photograph depicting them in a hot air balloon ride, or a written narrative that described them taking a hot air balloon ride. Although photos are thought of as reliable representations of the past, subjects exposed to a narrative were more likely to recall the false event than those exposed to a photo. Our results have theoretical implications for the ways in which false memories are created, and practical implications for those involved in clinical and legal settings.

## Picture this: true photographs and false memories
*D. Stephen Lindsay, Lisa Hagen, J. Don Read, Kimberley Wade, Maryanne Garry*
Some trauma-memory-oriented psychotherapists advise clients to review old family photos to cue suspected "repressed" memories of childhood sexual abuse. Old photos may cue memories, but they may also contribute to false memories. We asked 45 undergraduates to work at remembering three school-related childhood events. Two of the events were true and occurred in grades 5 or 6 and 3 or 4. The third event was the target pseudoevent: it described the subject putting slime in his/her teacher`s desk in grade 1 or 2. We also asked parents to provide school group photos of their child for each of the corresponding school years. Over a 1 week period, subjects were encouraged to work at remembering the false event, and some were given their school class photo to assist recall. As predicted, the rate of false-memory reports was dramatically higher in the photo condition than in the no-photo condition. In fact, the photo condition led to a higher rate of false-memory reports than any previously published study using a similar procedure. Various mechanisms may have contributed to the dramatic effect of the photo, for example, the photo may have added to the authoritativeness of the suggestive narrative and/or it may have enabled participants to speculate about details of the pseudoevent (e.g., which classmate collaborated on the prank). Our findings suggest that reviewing old photos can, in the context of concerted suggestive influences and memory-recovery techniques, dramatically increase the risk of false memories.

**Discussant:** *Elizabeth F. Loftus*

**KCF7**
**SYMPOSIA 11:40a.m.-12:55p.m**
**Social and emotional influences**
**on autobiographical memory**
**Chair: LAUREN R. SHAPIRO**
**Contact: shapirol@emporia.edu**
**Keywords: Autobiographical memory, Cognitive development.**

It is not uncommon for people to share their personal experiences, particularly for emotionally arousing events. By discussing our autobiographical memories, we learn to understand and interpret their relevance in our lives. The presenters in this symposium explored how various social-cultural factors and emotional valence of events affected children's or adults' autobiographical memory. In the first two presentations, both the narrative structure and use of evaluative devices in reports of emotionally salient events are assessed. The next two presentations examine the content of past experiences to determine the role of social-cultural aspects of the elicitation process on what was reported.

## Disappointed vs. delighted: Young athletes report a tournament win or loss
*Lynne Baker Ward, Kimberly Eaton, Samuel S. Snyder, Mary Koenig*
Relatively little is understood about the effects of children's emotional reactions on their memory for events. In two studies, we explored 10- year-old soccer players' reports of a tournament game initially and after a delay of 5-6 weeks. In both studies, the effects of a positive versus negative event outcome -- i. e., winning or losing the game -- on the content and structure of the children's event reports was examined. In the second study, the link between emotions during the game and aspects of autobiographical memory was also investigated, and the impact of athletic self-concept on recall was explored. Study 1 included 18 female players; Study 2 involved 31 players (16 males). Event narratives were elicited with general probes and the recall of pre-defined central and peripheral components of the game were assessed by wh- questions. Emotional reactions were obtained by administering questions modeled after the Cognitive Interview and Likert scales. A measure of athletic self-concept (ACS:

Harter, 1985) followed the final interview in Study 2. In both studies, children on winning teams reported more central game components and generated more cohesive narratives, whereas those who lost made more evaluative comments. In Study 2, children reporting positive emotions resisted more central misleading questions than did those describing negative emotions (M=83% versus 45% correct rejections). In addition, higher ACS scores were associated more forgetting of central information among players who lost the game. The implications of the findings for the construction and alternative of event representations will be discussed.

## Effects of odor on college students' recent and childhood memories

*Judith A. Hudson, Patricia Wilson, Robin Freyberg, Jeannette Haviland-Jones*

This study investigates the effects of odor on emotion and autobiographic memory. It has been suggested that childhood memories evoked by childhood odors would be especially vivid and include more emotion. We tested the effect of odor on childhood memories by exposing experimental groups to ambient childhood-related odors during a memory elicitation task. Forty college-aged men and women, divided equally, were exposed to one of four ambient childhood odors (CO: bubblegum, babypowder, Christmas-tree scent or pine cleaner); 10 men and 10 women were exposed to the control, propylene glycol (PG). Participants were asked to generate both a childhood memory and a recent memory, entering them directly into a computer, and to rate both memories for vividness and for degree of emotion elicited by the recollection. Memories were also rated for productivity (word count), as well as use of emotion words, narrative themes, and narrative coherence. Results indicate that childhood memories include more optimistic emotion words than recent memories. However, recent memories were rated as more vivid than childhood memories within all groups. Results also indicate that effects of odor on emotional content vary by gender, specific odor, and type of memory. Results will be discussed in terms of the effects of odor on emotion, and the interaction of odor, gender, and emotion in memory narratives

## "Why were you so scared?": Reminiscing of emotionally salient events between Euro-American and Chinese mothers and their 3-year-olds

*Qi Wang, Robyn Fivush*

Parent-child conversations of shared emotionally salient events serve important psychosocial functions. Such conversations intensify self-awareness in the memory event under discussion, strengthen social bonding between the child and significant others, teach children effective ways of coping with traumatic experiences, and further build the critical link between autobiographical memory and self-concept. Studies conducted to examine parent-child emotional reminiscing have mainly focused on middle-class Western families, and very few cross-cultural data are available to date. Divergent cultural beliefs about emotion and emotion-sharing entail different ways of emotional reminiscing across cultures. In American culture that values individuality, talking about emotions is regarded as a direct expression of the self and an affirmation of the importance of the individual. Parents are often eager to "help children to convey or articulate their own emotions and feelings so that ultimately they can 'get their needs met'" (Chao, 1995, p. 339). In contrast, in Chinese culture that puts a premium on social harmony and group interests, emotion is often viewed as disruptive or even dangerous to interpersonal relations and therefore needs to be strictly controlled. Parents are not preoccupied with helping children express their own feelings but rather emphasizing psychological discipline and behavioral standards. This study explores the functional variations in mother-child conversations of emotionally salient events in Euro-American and Chinese families. Thirty 3-year-old children and their mothers from each culture participated. Mothers were asked to discuss with their children at home two specific one-point-in-time events in which they both participated. One event was extremely positive to the child, one extremely stressful. Systematic cultural differences emerged in the emotional, cognitive, and social content of memory conversations. Findings are discussed in light of cultural variations in the functions of emotional reminiscing, including self construction, relationship maintenance, emotion coping, and didactic instruction.

## "That's the wrong song:" Interviewer role and question type on children's autobiographic memory

*Lauren R. Shapiro, Lynnae Lewellen*

In western culture, children relate their experiences to people who had or had not participated in the event with them. According to the Script-Pointer + Tag (SP+T) Hypothesis, children will report typical aspects rather than unusual features of events over time. Does the amount and type of information children report vary as a result of the listener's knowledge of the experience? 27 children (6 to 8 years) provided knowledge reports about birthday parties and a week later participated in a party. Children were interviewed one week and seven weeks later by someone who either participated or did not participate in the event. Children were asked general, open-ended questions, followed by non-leading questions. At the end of the seven week interview only, children's recall of 10 atypical features was elicited using non-leading questions, followed by both positive leading and negative leading questions. Consistent with SP + T, children recalled more typical than atypical features. A higher amount of typical information was given to the non-participant than to the participant interviewer (M = 6.03 vs. M = 4.83). Nonleading questions elicited more of the atypical features than did leading questions (M = 3.04 vs. M = 1.91). Violations, but not omissions, were elicited through open-ended questions (M = 1.96 of 4). Nonparticipant interviewers elicited more omissions than participant interviewers using nonleading questions (M = 1.83 vs. M = 1.08 of 3). In summary, interviewer knowledge and type of questions used to elicit recall affected the amount and type of information reported about an experience.

**Discussant:** *Robyn Fivush*

**KCF8**

## PAPER SESSION 11:40a.m.-12:55p.m
### Metacognition
### Chair: PHIL HIGHAM

### Metacognitive influence on reported amnesia for autobiographical events
*Hartmut Blank*

An empirical study (N = 142) addressed metacognitive influence on reported amnesia for autobiographical events. Providing a different metacognitive background by telling participants that the study was about repression (vs. fluctuation) in autobiographical memory yielded 50% more (and longer) reported amnestic periods. Implications for assessing amnesia for childhood sexual abuse are discussed.

### Is amnesia a metamemory belief?
*K. I. M. van Oorsouw, H. L. G. J. Merckelbach*

The current study investigated the effect of meta-memory beliefs about retrieval of childhood memories on memory performance. Retrieving many childhood memories induced the belief that there is a lack of childhood memories. We investigated how these beliefs affect additional autobiographical memory performance

### Confidence and accuracy in sentence recall: Mechanisms and relationships
*Cristina Sampaio, William F. Brewer, M. Rose Barlow*

The study investigated confidence in sentence memory. We identified mechanisms that underline confidence judgments in recall and confirmed that these mechanisms lead to a positive confidence-accuracy relation for nondeceptive items but lead to a breakdown in the relationship for deceptive items that cause unconscious schema-based memory errors.

### Forgetting prior episodes of remembering: Breadth, confidence, and recovery in the forgot-it-all-along effect
*Michelle M. Arnold, D. Stephen Lindsay*

Forgetting a prior instance of recall is more common when participants think of the recalled item in different ways on the two occasions (Arnold & Lindsay, 2002). We examine the breadth of this forgetting of prior remembering, the confidence with which it is held, and ability to recover memories of remembering.

### Metacognition and "correction for guessing" in multiple choice tests
*Philip A. Higham*

Commonly, both psychological testers and educators who administer multiple choice tests "correct for guessing" by subtracting marks for incorrect responses, persuading testees to leave some blanks. However, deciding how many and which items to skip involves metacognition, a point which is often overlooked. The current research focuses on this metacognition.

### Auditorium
### SYMPOSIA 1:55 - 3:10 p.m.
### Positive and negative effects of suggestion
### Chair: GIULIANA MAZZONI
### Contact: mazzongi@shu.edu
### Keywords: Social cognition, Suggestibility.

The negative power of suggestion is well demonstrated. For example, it is known that suggestive procedures can have deleterious effects on memory, modifying and distorting people's recollection of the past. In this symposium new data are presented that extend our understanding of the role of suggestion in cognition by showing its effects on new phenomena. These studies show that suggestive procedures can not only distort memories of past experiences, but also the experience of future events. Data are also presented demonstrating that suggestive procedures can have a positive impact on cognitive and behavioral experiences

### Does warning children about misinformation decrease suggestibility?
*Laura Melnyk, Frank D. Lamie, Jr., Jodi A. Kaiman, Lisa Wechzelberger*

The literature examining children`s source memory and suggestibility indicates that children do not use this source knowledge when making memory judgments. The present study examines whether discrediting the source of post-event information improves children`s ability to use source information in making memory judgments, and thus promote accurate recall of experienced events.
Three- to 6-year-old children participate in three 10-15 minute sessions over a 3-week period. In Session 1, pairs of children experience a special event (i.e., they interact with a "wizard" who tells them a story, performs a magic trick, etc.). In Session 2, the children individually meet with Researcher #1 who will talk about the special event; some of the details that the researcher mentions are accurate and some details are inaccurate.

In the third session, the children meet a second researcher who asks the children about details of the special event.

The experimental manipulation involves when the children are told that Researcher #1 (from Session #2) may make (or may have made) some errors in what she tells them. This information will be given to the children either directly before or after Session 2, or directly before or after Session 3.

The data is currently being collected. The data will be related to the source-monitoring approach to suggestibility and applied implications will be discussed.

## Illness by suggestion

*William Lorber, Giuliana Mazzoni, Irving Kirsch*

Mass psychogenic illness (MPI) is presumed to occur via suggestion. However, the means by which suggestion produces these effects is unclear. Factors that have been proposed are observation and expectation. This study, designed to be an experimentally controlled analogue of MPI, investigated the role of observation and expectancy in MPI. Sessions included one participant and one confederate who were either exposed (via placebo inhaler) to a substance that they were told might cause symptomology, or were in the control group. When "exposed," confederates modeled four symptoms. ANCOVAs controlling for baseline symptomology indicate that 1.Expectations of symptoms can produce the experience of the expected symptoms. 2. Observation alone does not significantly increase reported symptomology. 3. Observation does not significantly add to reported symptomology when combined with expectations of symptoms.

## The effect of suggestion on stroop performance

*Jessica Pollard, Amir Raz, Irving Kirsch*

This paper presents two studies on the effect of suggestion on Stroop task performance. In the first study, high suggestible and low suggestible subjects were given a posthypnotic suggestion to only attend to the ink color and to see the stimuli as meaningless symbols. Specifically, they were told: "When I clap my hands, meaningless symbols will appear in the middle of the screen. They will feel like characters of a foreign language that you do not know, and you will not attempt to attribute any meaning to them." Posthypnotic suggestion completely eliminated Stroop interference among high-suggestible subjects who had been hypnotized and then bought out of hypnosis, but not among low-suggestible controls to whom these procedures had been administered. The second study replicates the first and extends it to nonhypnotic suggestion. Participants selected for high levels of imaginative suggestibility were randomly assigned to two conditions. In both conditions, the Stroop test was administered twice, once with the suggestion to see meaningless symbols on the screen and once without suggestion. In one condition, the suggestion was administered as a posthypnotic suggestion after the induction of hypnosis. In the other condition, it was administered without inducing hypnosis. Data on the second study is currently being collected and analyzed. If study one is replicated, it would challenge the dominant view that word recognition is obligatory for proficient readers and may provide insight into top-down influences of suggestion on cognition.

## Na(HCO)3 + H20: The memory distortion cure?

*Seema Clafasifi, Maryanne Garry, David Harper, Rachel Sutherland*

Consumers spend millions of dollars a year trying to drink, swallow and chew their way into having a better memory. Products with names such as RememberFX, RxMemory and GinkgoIQ promise to sharpen thinking, improve mental clarity, and even help you remember where you put your keys. There is no empirical evidence that these products actually work. Are people pursuing a lost cause? Our experiment suggests that as long as people expect these products to improve their memories, then their memories will improve.

Although there have been no successful demonstrations of a positive placebo effect in the memory literature, we reasoned that previous attempts have failed to capitalize on social components of memory. It is the social component-rather than the cognitive component-that is affected by people's expectations about how a substance will affect them.

We asked fifty-two adults to participate in a fictitious drug study, in which half the subjects were told they were receiving a cognitive enhancing drug, while the other half thought they were receiving the inactive version of the same drug. In fact, all subjects received a lime flavored baking soda mixture. All subjects then participated in a typical three-stage eyewitness experiment.

We found that "Told Drug" subjects were more resistant to suggestion than their "Told Placebo" counterparts. In other words, merely telling people they have consumed a cognitive enhancing drink was enough to reduce their susceptibility to misleading information These results have implications for the extent to which we have conscious control over memory distortions.

## Suggestibility for childhood events: The effect of plausibility and schematicity

*Rhiannon Ellis, Jonathan Schooler*

Garry, et. al , (1995) showed that having subjects imagine events can make them more likely to believe that they experienced those events. Research by Pezdek, Finger, and Hodge (1997), however, showed differing levels of suggestibility for different types of events. They successfully increased participants confidence in one event (e.g., being lost in a mall), but not another (e.g., having received an enema). Problematic in the follow-up research, however, is that the two possible reasons for the discrepancy between events, schematicity and plausibility, were confounded. In the present experiment, we considered these two factors, both independently and together. Participants completed a questionnaire about the likelihood of various events happening to them in early childhood, including receiving an enema. At least two weeks later, participants were given either: schematic information (details regarding enema procedures), plausibility information (details regarding the inflated prevalence of enemas), both, or neither. Participants were then asked again about their beliefs regarding the likelihood that they had received an enema in childhood. We found a main effect for plausibility; i.e. those who received information that enemas were a

plausible occurrence were significantly more likely to increase their beliefs that they had received one. In contrast there was no effect of providing greater information about enema procedures. The present study thus suggests that plausibility, and not schematicity, is necessary in order to increase individuals confidence that they may have personally experienced an event.

### KCF7
### SYMPOSIA 1:55 - 3:10 p.m.
### Flashbulb memories: Examining recall for tragedy
### Chair: LAUREN R. SHAPIRO
### Contact: shapirol@emporia.edu
### Keywords: Autobiographical memory, Flashbulb memories.

Researchers have been intrigued for over a century with the idea that people can remember vividly the circumstances in which they first learned of very surprising and emotionally arousing public events. Some psychologists have argued that flashbulb memory does not exist because people's recall of the event, like other autobiographical memory, is flawed. At the heart of the debate is whether people construct a detailed and permanent record of their experiences for the period immediately before, during, and after the shocking experience that is immune to forgetting. The researchers in this symposium attempted to determine whether the amount of remembered information remained constant over time or instead became less detailed and complete as time passed.

### Confidence, not consistency, characterizes flashbulb memories
*Jennifer Talarico, David C. Rubin*
On September 12, 2001, 54 Duke students recorded their memory of first hearing about the terrorist attacks of September 11 and of a recent everyday event. They were tested again either one, six, or thirty-two weeks later. The experimental sessions each consisted of short open-ended questionnaires about each event, the Autobiographical Memory Questionnaire which was designed to assess the contributions of various autobiographical memory properties for each memory, and, at the follow-up session only, a short survey (the PCL-S) designed to assess post-traumatic stress disorder symptoms (PTSD).
There was a decrease in consistent details and in increase in inconsistent details over time that was the same for the flashbulb and everyday memories. However, ratings of vividness, recollection, belief in the memory's accuracy, whether the memory came as a coherent story or in pieces, and rehearsal remained high and constant for flashbulb memories but decreased over time for everyday memories. Thus, flashbulb memories are not special in their accuracy, only their perceived accuracy. Contrary to the literature, no initial ratings, including measures of emotion, correlated with later flashbulb memory consistency. Belief in the memory's accuracy at the delayed test was correlated with initial measures of visceral responses, whether the memory came in pieces, was rated as remembered vs. known, was specific to one`s own life, and was often rehearsed. Initial visceral responses and valence ratings of the flashbulb event were significantly correlated with higher delayed ratings of PTSD symptoms.

### Flashbulb memories of recent and distant events: Effects of time delays and perceived importance on complexity of personal memories surrounding the death of Princess Diana and September 11
*Lia Kvavilashvili, Simone Schlagman, Diana Kornbrot, Jennifer Mirani*
Two empirical studies addressed the issue of stability of flashbulb memories by examining the effects of time delays on the nature of flashbulb memory descriptions irrespective of their veridicality. An additional issue was the role of perceived importance of the target event. In Study 1, a Flashbulb Memory Questionnaire was administered to 65 British and 59 Italian volunteers. This assessed the details of their memories for one distant public event (the death of Princess Diana, 51 months earlier) and one recent event (the terrorist attack in New York, 3 months earlier). The results showed that British participants had as clear and detailed flashbulb memories for the distant death of Princess Diana as for the recent terrorist attack in New York (both in terms of the number and specificity of the reported details). This was not the case for Italian participants whose flashbulb memory scores for the terrorist attack were reliably higher than for the death of Princess Diana. In Study 2, it was found that the flashbulb memory scores of the 51 month old memories for the death of Princess Diana obtained from 65 British participants in Study 1 were not reliably different from those for the terrorist attack in New York of two additional groups of British participants whose memories were assessed immediately (on 12-13 September, 2001) and very soon (on 21/22 September) after the event. Taken together, the results support the idea that flashbulb memories for important public events can be relatively immune to forgetting.

### Danish students' reception and memory of the September 11th World Trade Center attack
*Tia Hansen*
One hundred students` perception of the WTC attack and their reception context was recorded within 24 hours and compared to their memory after nine months. The news spread fast; within two hours of the attack, almost all participants knew. About half of them heard from another person before encountering the mass media reports, and in a number of cases the first source was a stranger, a cell phone call, or another rather unusual source of public news. The most common initial reaction was disbelief, and surprise and emotional intensity were rated as very high. Perceived personal consequentiality was generally moderate, although a small minority expressed concern for a risk of WW III or commented on events in a way that could suggest a disturbing `loss of innocence`. Initial ratings of surprise, emotional intensity and perceived consequentiality show little or no correlation with rated vividness and confidence of memory nine months later. However, rated frequency of having thought or

spoken about the event within these first 24 hours significantly covaries with most of the nine-months measures of memory vividness and confidence for both target event and personal reception context. This lends some support to the suggestion of ordinary memory mechanisms, such as rehearsal, as a more likely explanation for flashbulb memories than direct effects of special encoding factors. Also, a potential effect of active early rehearsal supports suggestions that memory must be compared to recordings made very soon after the event, and that narrativisation set in early.

### The effect of time on flashbulb memory for September 11th
*Lauren R. Shapiro, Erynne H. Haugen*
Since Brown and Kulik's legendary study on flashbulb memory, psychologists have both refuted and defended the legitimacy of flashbulb memories. The tragedies of September 11, 2001 and its vast media coverage providd a unique opportunity for the investigation of flashbulb memory. In the current study, 33 eastern Kansan college students were given surveys immediately, after a short delay, and after a long delay. Group 1 completed surveys one day, two weeks, and 11 weeks after 9/11. Group 2 completed surveys 2 days, 6 weeks, and 11 weeks later. An additional 21 students (Group 3) completed surveys after 11 weeks only and another 22 students (Group 4) completed surveys after 4 months. A subsample of 34 participants from all four groups completed surveys about one year after 9/11. The surveys assessed four canonical categories of flashbulb memories (where, event interrupted, how learned, relevance) and elicited event memory accounts. In the delayed surveys, students were asked to differentiate old and new information. The one year survey asked students about their media exposure for the events of 9/11. Analyses focused on whether canonical categories, the hallmark of flashbulb memories according to Brown and Kulik, were consistent over all time intervals. Event reports were analyzed for the total number of features recalled, the components of 9/11 reported, the amount of information given (e.g., general, elaborated), consistency of components across reports, and source monitoring errors in recall over time. Finally, information concerning the effect of the amount of media consumption on recall for 9/11 will be addressed.

### Flashbulb and fact memory of 9/11/2001 as a function of age
*Gezinus Wolters*
We used the terrorist attacks on September 11, 2001 to investigate age effects in the formation and duration of flashbulb memories. A group of college students was questioned two weeks after the attack, and again two months later. In this group, we compared the consistency over time of flashbulb memories and of memory for factual details of the event. After 2 month, also a group of healthy elderly respondents was given the memory questions. Flashbulb memories were found without exception in both delays and in both age groups. These memories were described as very vivid, and the original event was judged to have been accompanied by relatively high levels of emotion, rehearsal, and (to a lesser extent) personal involvement. Already over a period of two months, however, factual memory, and to a lesser degree also flashbulb memories, were subject to some deterioration. We conclude that the creation of flashbulb memories can be explained as a special case of normal memory for emotional events.

**Discussan**t*: Martin Conway*

**KCF8**
**PAPER SESSION 1:55 - 3:10 p.m.**
**Eyewitness Testimony**
**Chair: KEVIN COLWELL**

### Eyewitnesses versus earwitnesses: Remembering a criminal conversation
*Laura Campos, Maria L. Alonso-Quecuty*
There has been little research examining the effects of different modalities of experiencing a conversation upon witnesses` memories. Our results show that the recall of a criminal conversation by subjects who have received a visual-plus-auditory mode of presentation clearly differs from that of people who received an auditory-alone mode.

### A survey of U. S. judge's knowledge and beliefs about eyewitness testimony
*Martin A. Safer, Richard A. Wise*
U.S. judges (N = 160) indicated their knowledge and beliefs about eyewitness testimony. The judges had limited knowledge. More knowledgeable judges indicated greater reluctance to convict defendants based solely on eyewitness testimony and greater willingness to permit legal safeguards, such as expert testimony, to inform jurors about eyewitness factors.

### Assessment criteria indicative of deception
*Kevin Colwell, Cheryl Hiscock-Anisman, Holly Yaeger*
This statement analysis protocol employs a semi-scripted version of the Cognitive Interview, and tests statements through Assessment Criteria Indicative of Deception (ACID test). Significant differences emerged between honest and deceptive conditions, and these differences allowed classification of statements as honest or deceptive. The performance of the ACID test and implications for researchers and investigators will be

presented and discussed.

## Audience effect in eyewitness testimony

*Hartmut Blank*

In social psychological research, the presence of an audience leads to more dominant and fewer non-dominant responses (Zajonc, 1965). In eyewitness testimony, dominant (non-dominant) responses may be identified with the recall of central (peripheral) details of witnessed scenes. Evidence from a small eyewitness study is presented to support this assumption.

## Using memory recall as an indicator of distorted schemas in child molesters

*Theresa A. Gannon*

Researchers presume that child molesters hold distorted schemas about children ("cognitive distortions"). Child molesters were asked to read and recall a vignette depicting ambiguous child behaviours. Although child molesters' recall had acceptable levels of general memory distortion, they could not be differentiated from offender controls based on "cognitively distorted" recall.

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**Auditorium**
**SYMPOSIA 3:30 - 4:45 p.m.**
**Memory reports for repeated events**
**Chair: DEBORAH A. CONNOLLY**
**Contact: debc@sfu.ca**
**Keywords: Source monitoring, Suggestibility.**

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Witnesses often testify about instances of repeated events. This is common for child witnesses (e.g., repeated child abuse) and, in certain circumstances, for adult witnesses (e.g., spousal abuse and stalking). Commonly, when witnesses to repeated events testify they are expected to provide details of particular instances of the event. There is a dearth of relevant forensically focused research informing this issue. In this symposium we begin to fill that gap by presenting five papers that consider four important issues related to memory for repeated events: Ability to discriminate between similar events, suggestibility, memory for frequency, and deception detection.

## What was different about the time when….?

*Kim P. Roberts, Martine B. Powell*

Children sometimes confuse memories of similar incidents that they have experienced and so it is not clear whether children are even aware that individual incidents often differ in some ways (e.g., time of day, location, etc.). If victims of repeated abuse are not aware of such differences between incidents, attempts to elicit unique information about an individual incident (as required in many jurisdictions) may be futile. We investigated whether children's tendency to confuse memories of similar incidents reflects a problem with source attribution or simply a failure to notice differences between incidents. Ninety-seven 5- to 8-year-olds participated in a staged classroom event on four different occasions. Five details were identical across the incidents, 7 varied each time (e.g., story was different), and 7 varied just once across the series (e.g., sat on newspaper during first occurrence, but sat on garbage bag during occurrences 2, 3, and 4). A week later, children described the incident they remembered best and were then asked whether that incident differed from the others. Although 81% of the children correctly indicated that the occurrence did differ, only 26 (33%) of these children subsequently provided information that was unique to the occurrence they had described. These results support the existence of an implicit awareness of source that gradually develops into an explicit understanding of the distinctiveness of different sources of information (e.g., Robinson, 2000). Because of children's difficulty with the task, the results challenge the standards currently required of alleged victims of repeated child abuse.

## Demand characteristics and the suggestibility paradigm: The effect of recall instructions on children's reports of repeated and unique events.

*Heather L. Price, Deborah A. Connolly*

Research examining the effect of repeated experience on children's suggestibility for particular kinds of information associated with that experience has produced differing results. One study reported an enhanced suggestibility effect for variable details in children who repeatedly experienced an event compared to children who experienced an event once. Others reported no such effect. This study examined the possibility that demand characteristics contributed substantially to this disparity. Four-to-five-year old children engaged in either one or four play sessions in which all details varied. Four days later, children were given a biasing interview wherein half of the critical details were incorrectly represented. One day later, children were given a final memory test that was preceded by one of three instruction types designed to control demand characteristics variably: no special instructions, moderate instructions (i.e., an explanation that a range of answers may be appropriate for any one question, e.g., "sometimes the right answer is 'no,'" "it is okay to say 'I don't know'"), or opposition instructions (children were told that the biasing interviewer was confused and had said some things that were wrong, so the children must not report any information heard in the biasing interview). Although instruction type influenced some aspects of children's reports, children in the repeated event condition were still more suggestible than those in the single event condition. Implications for understanding the discrepancies in the literature regarding suggestibility for repeated events are discussed

**Does categorical association between variable options of a repeated event effect children's suggestibility?**
*Deborah A. Connolly, Heather L. Price*

Studies of children's suggestibility for variable details of a repeated event compared to details of a unique event have reported inconsistent results (Connolly & Lindsay, 2001, Powell, Roberts, Cecil, & Hembooke, 1999; Powell & Roberts, 2002). This experiment was designed to study the influence of categorical association between the variable details on suggestibility. First graders participated in one play session (single-session) condition) or four play sessions (multiple-session condition). Each play session contained 16 critical details. In the multiple-session condition, all of the critical details (e.g., make a puzzle) varied across play sessions. Half of the critical items were high association items (i.e., details were exemplars from the same category, for instance the picture on the puzzle was a dog, cat, horse, or cow) and half were low association items (i.e., details were exemplars from different categories, for instance the picture on the puzzle was a dog, baseball, car, or ant). Two weeks after the last play session for multiple-sessions children and the only session for single-session children (the target play session) children were given incorrect information about some of the target details. The next day, children were asked cued recall questions about the target play session. For items assigned to the low-association condition, reports of suggested details did not vary as a function of number of play sessions. Conversely, suggested responses to items assigned to the high association condition were higher in the multiple-session condition than in the single-session condition. This is discussed as a partial explanation for the disparity in the literature.

**Frequency judgments for true and false events: The effects of feedback.**
*J. Don Read, Michelle M. Arnold*

Testimony concerning repeated autobiographical events includes descriptions of their nature and frequency. Wells and Bradfield (1996) have shown that false feedback about a person identification decision alters witnesses' retrospective reports of the witnessed event's qualities. The present research explored whether the event characteristic of frequency, may be moderated by feedback. A false memory paradigm was used in which items (events) in associative word lists were presented from 1 to 5 times during study. Following each list presentation, free recall and recognition tests assessed participants' memories for list items and for their ability to discriminate between New and Old items. New items included the list themes or "critical lures" around which the associative lists had been constructed as well as lures from nonpresented lists. Feedback followed participant's responses and was either none, correct, or incorrect. Thus, for critical lures, participants were sometimes correctly told it had not been presented or erroneously told the item had been presented at study. Following the recognition tests, a frequency judgment task assessed the impact of actual frequency (during study) and feedback on frequency estimation. The results showed that the never-presented critical lures were assigned presentation frequencies that corresponded to the average frequency of true events and, further, under some conditions, false feedback significantly increased these reported frequencies, compared to no or correct feedback. In short, judgments about the frequencies of both true and false events were altered by post-presentation feedback. This effect was particularly true for items that had initially been reported in free recall, including the critical nonpresented items.

**The language of memory: Differences in content criteria of children's reports of fabricated, unique and repeated experiences**
*Jennifer A. A. Lavoie, Deborah A. Connolly*

Research has demonstrated that the nature of memory for experienced events differs qualitatively based on whether the event to be recalled was experienced once or repeatedly. Given that recall for an instance of a repeated event is more susceptible to error relative to recall of a unique event, the impetus of the present study was to explore the degree to which children's reports of a unique event, instance of a repeated event, and an invented event differed in terms of reality monitoring (RM) and other specific deception detection criteria. A one-way (event type: fabricated, single event exposure, repeated event exposure) between subjects design was conducted measuring the presence of Aberdeen Report Judgment Scale (ARJS, Sporer, 1998) criteria. Children aged 7-8 engaged in either a single play session, four play sessions or a story generation condition. Play sessions were conducted individually for each participant and included four activities. In the repeated condition, particular details varied across play sessions. Children in the story generation condition were coached to fabricate a story about attending a play session. Participants were interviewed one day after the last session. Results indicated the extent to which style and content of linguistic accounts of an experience differed significantly if an event was experienced once as compared to several times or not at all. Results further determined whether accounts contain cues that indicated whether a reported event was invented or truly experienced irrespective of accumulated experience. Implications relative to diagnostic credibility instruments will be discussed.

**Discussant:** *D. S. Lindsay*

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**KCF7**
**PAPER SESSION 3:30 - 4:45 p.m.**
**Retrieval practice**
**Chair: DAVID PAYNE**

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**Expanding retrieval practice: Investigating the parameters**
*Catherine O. Fritz, Peter E. Morris*

Expanding retrieval practice (ERP), repeated testing with increasing lags, is investigated in seven experiments. Longer schedules, with more

tests, provide increasing benefits. Learners from preschool to old age benefit with sufficiently short lags. ERP is also effective in actual university classes and in simulated eyewitness studies.

## How useful do university students find memory improvement courses?
*Emmanuel Manalo, Kenneth Higbee, Julie Trafford, Charlotte White*
This paper examines and discusses findings from student evaluations of memory improvement courses that the first two authors taught in New Zealand and US universities. These indicate that both immediately after the course and at follow-up (some 4-6 weeks afterwards), students perceive the courses as useful and meeting their expectations.

## Stretching the boundaries of the expanding retrieval technique for remembering names
*John J. Shaughnessy, Elizabeth Helder*
Participants viewed a videotaped conversation and were tested for recall of the conversation and of names introduced during the conversation. The expanding retrieval strategy was effective for remembering names under these concurrent memory demands. It was most effective with instructions to use the strategy and with freeze-frame pauses during introductions and retrievals.

## Retrieval practice and meaning strategies for improving name learning
*Peter E. Morris, Catherine O. Fritz*
The reported experiments explored techniques for improving name learning. For groups, the name game proved very effective. Expanding retrieval practice (ERP) and seeking name meaning produced independent benefits, together leading to a tripling of recall. ERP used at a real party improved recall but an imagery strategy did not.

## What memory skills are most important to university students in the USA and New Zealand?
*Kenneth L. Higbee, Emmanuel Manalo*
University students taking memory-skills workshops in the USA and New Zealand rated each of 12 aspects of memory (e.g., people's names, schoolwork, everyday tasks) for how important it is to them. Comparisons were made among the 12 aspects and between the two groups of students.

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**KCF8**
**PAPER SESSION 3:30 - 4:45 p.m.**
**Autobiographical memory II**
**Chair: DAVID RUBIN**

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## The construction and validation of the Autobiographical Memory Scale
*Michael Conway, Constantina Giannopoulos, Annmarie Crampton*
Individual differences in autobiographical memory ability were addressed by the development of a face-valid self-report questionnaire (the Autobiographical Memory Scale). Studies indicate good convergent and discriminant validity of the AMS with other self-report measures of memory and cognitive function, and good test-retest reliability.

## Cultural life-scripts: A new way of predicting recall from autobiographical memory
*Dorthe Berntsen, David C. Rubin*
Life-scripts are culturally shared expectations of the timing of major life events. Life-scripts are biased towards positive events occurring in youth. They structure recall of personal memories across the lifespan and provide a more parsimonious explanation of most findings on the bump than analyses at the level of the individual.

## Eliciting involuntary autobiographical memories in the laboratory: Developing a new method of investigation
*Lia Kvavilashvili, Simone Schlagman*
A novel method of eliciting involuntary autobiographical memories in the laboratory was successfully developed. Additionally, the same participants produced voluntary autobiographical memories using a traditional cue-word technique. Interesting differences were observed. On average involuntary memories were retrieved four seconds faster than voluntary memories. Involuntary memories tended to be older, more positive, and more specific compared to voluntary memories.

## Women are different - men, too. Gender differences in autobiographical memory, empathy and social skills
*Michael Bender, Rüdiger Pohl, Gregor Lachmann*
We investigated gender-specific relationships between autobiographical memory, empathy, and social skills using a set of questionnaires. Significant predictors for autobiographical memory performance were found to be empathy for women and social skills for men. These findings

are discussed in the context of developmental and evolutionary psychology.


**The temporal organization of autobiographical events**
*Rüdiger F. Pohl*
The results of a reaction-time experiment, studying the temporal order of events from one's own or someone else's autobiographical memories, suggested that the temporal order of autobiographical events reflected interval properties of time, while the temporal order of allobiographical events (i.e., those from another person) reflected only ordinal properties.


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**Auditorium**
**KEYNOTE**
**4:50 - 5:35 p.m.**
**Children's memory development: Learning to remember**
**PETER ORNSTEIN**
**Chair: Lauren R. Shapiro**

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