Mental time travel ability and the Mental Reinstatement of Context for crime witnesses

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Mental time travel ability marks how well the phenomenological aspects of events are mentally re-experienced during recall. The Cognitive Interview (CI) elicits eyewitness information. One of its techniques, Mental Reinstatement of Context (MRC), asks eyewitnesses to reinstate the incident’s context mentally before recall. Fifty-six participants watched a simulated crime video. Self-report measures were then taken to estimate general mental time travel ability. Participants were questioned subsequently about the video. Eyewitness performance under MRC was compared with the CI’s Report Everything (RE) technique, wherein eyewitnesses recall everything they can but with no invitation to mentally reinstate the context. There was no effect of interview condition on accuracy of recall; however, general mental time travel ability was positively associated with the amount of correct and incorrect information produced under MRC, but not RE, conditions. This is the first empirical demonstration that MRC instructions engage the mental time travel capacities they purport to.

1. Introduction

The evidence gained from the verbal reports of people witnessing a crime plays a central role in the investigative process (e.g., Gabbert, Hope, & Fisher, 2009; Kebbell & Milne, 1998). It is, therefore, very important to crime investigators to elicit as much, and as accurate, information from eyewitnesses in as timely a manner as possible. One interviewing technique designed to facilitate the elicitation of crime event information from eyewitnesses is the Cognitive Interview (CI; Geiselman, Fisher, MacKinnon, & Holland, 1986; Geiselman et al., 1984). The CI contains a number of different components, each of which places its emphasis on a different method of obtaining information from the interviewee; amongst these is a component whose instructions ask eyewitnesses to mentally place themselves back in the context of the crime event before stating all the details that they can remember about that event. This mnemonic technique is known as Mental Reinstatement of Context (MRC). Mental time travel (e.g., Suddendorf, Addis, & Corballis, 2009; Suddendorf & Corballis, 1997), describes the ability to travel mentally backwards and forwards in time when considering the what, where, and when of a personal event (or www-memory; e.g., Roberts & Feeney, 2009) and is closely linked to episodic memory (e.g., Tulving, 1985, 2001). The ability to travel mentally in time has been found to vary between individuals (e.g., D’Argembeau & Van der Linden, 2006) and over the life-span (e.g., Clayton & Russell, 2009; Souchay, Isingrini, & Espagnet, 2000; Tulving, 2002). In asking the eyewitness to place themselves mentally back in the context of a crime event, the MRC process would, prima facie, appear to

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engage the same //or very similar) processes as those involved in mental time travel. However, as far as the authors are aware, this assumption has not previously been subject to empirical investigation. The current study, therefore, sought to determine whether individual differences in generalized mental time travel ability would influence eyewitness memory and, in particular, whether these differences would influence the effectiveness of the (E)CI interviewing technique in eliciting information about a simulated crime event.

Mental time travel encompasses both the ability to re-experience personal events from the past (i.e., episodic memory) and to “pre-experience” (e.g., Szpunar, 2010) imagined events in a personal future (i.e., episodic future thinking; e.g., Atance & O’Neill, 2001; Szpunar, 2010). When engaged in mental time travel, a person re-experiences mentally the feelings, sensations, and environmental setting of the event in question. The various phenomenological aspects of mental time travel, tapping into the various sensations, bodily experiences, and physicality of personally experienced events can be probed experimentally using a combination of cued-writing and self-report responses. The Crovitz-Schiffman technique (Crovitz & Schiffman, 1974), used in conjunction with the Memory Characteristics Questionnaire (MCQ; Johnson, Foley, Suengas, & Raye, 1988), is argued to allow an insight into the phenomenological experiences associated with recalling a specific episode from an individual’s personal past (e.g., Arnold, McDermott, & Szpunar, 2011a, 2011b; D’Argembeau & Van der Linden, 2006).

Under this paradigm, individuals are presented with a memory cue in the form of a single word. They are then asked to write about a memory, usually (but not necessarily) triggered in response to that cue, for a short period of time. At the end of this writing phase, the individuals are presented with the 12-item MCQ and asked to rate the extent to which they mentally re-experienced the event along a number of different phenomenological dimensions. Individual differences in MCQ scores have been found in response to cues about personally experienced events from the past and imagined personal events in the future (e.g., Arnold et al., 2011a), indicating that this approach does allow an insight into mental time travel and differentiates between individuals in terms of the extent to which an event is subjectively re- (or pre-) experienced.

As mentioned previously, the CI is a memory enhancing interview protocol developed by Geiselman et al. (1984) (see also Geiselman et al., 1986). It was developed in response to a direct request from police officers who raised a concern that, when probed, eyewitnesses rarely remember as much information as police officers would like (Kebbell & Milne, 1998). To meet the aim of improving eyewitness accounts, the CI consists of four memory enhancing components (1) Report Everything (RE), (2) MRC, (3) Change Temporal Order, and (4) Change Perspective. These four components are underpinned at a theoretical level by Bower’s (1967) Multiple Trace Theory. Bower suggested that because memory is reconstructive and consists of multiple associations, it may be possible to access a particular memory in a number of different ways. Thus, with specific reference to the CI, if a witness’ memory cannot be accessed using one technique, then it may be possible to access it using a different technique. The CI as originally proposed by Geiselman et al. was further developed by Fisher and Geiselman (1992) to embed the original four memory enhancing components, along with new strategies and techniques focusing on the psychology of interpersonal communication, within a clear, phased interview structure. Within this structure, each phase of the interview contributed towards the overall success of the interview. This ‘enhanced’ CI (or ECI) is now used by many police forces around the world to interview co-operative victims and eyewitnesses. Research has demonstrated that the (E)CI leads to a large and statistically significant increase in correct recall compared with a control interview which does not contain the four memory-enhancing components of the CI (Memon, Meissner, & Fraser, 2010). A more in-depth examination of the two memory enhancing (E)CI components used in the present study, namely MRC and RE, now follows.

Mental Reinstatement of Context is widely perceived as one of the most effective components of the CI (Dando, Wilcock, & Milne, 2008). It is based on the Encoding Specificity Hypothesis (Tulving & Thomson, 1973) which posits that reinstating the original encoding context at the point of retrieval is likely to lead to increased recall. Consistent with this hypothesis, Godden and Baddeley (1975) demonstrated that the recall of word lists by divers was approximately 50% higher if they both learnt the words and retrieved the words underwater (i.e., in the same context or physical environment), than when learning took place underwater and retrieval occurred on land (i.e., different physical contexts). In addition to physical context, personal context has also been found to be important. Bower (1981) induced either happy or sad moods in participants using hypnosis prior to asking them to learn lists of words. Recall was significantly better if the participants’ mood states at learning and recall matched than if their moods differed between learning and recall.

Of course, when a criminal act is being investigated, it may not be appropriate for a witness to return to the physical location of the crime. When such a case arises, interviewees are instead asked to mentally reconstruct the context of the crime, in terms which are both physical (i.e., environmental) and personal (e.g., how the interviewee felt at the time). This process of mental reconstruction is argued to increase the feature overlap between retrieval and the encoded event (Wilcock, Bull, & Vrij, 2007). To facilitate this process of mental reconstruction, a series of short questions and statements are presented to the witness, such as “Think of where you were”, “How were you feeling at the time”, and “Think of all of the people who were present”. Between each of these prompts, a pause is placed to allow the witness to develop the “image” of the event in their mind, thus reinstating the context of the crime event. Although Smith and Vela’s (2001) meta-analysis suggest a beneficial effect of mental context reinstatement, it must be borne in mind that some research shows no beneficial effect of context reinstatement under certain circumstances (e.g., Cutler, Penrod, & Martens, 1987).

The RE component of the CI encourages eyewitnesses to report everything they can remember about the event in question, going beyond their self-generated attempts to do so. To this end, they are instructed to report all the details that they can remember about the event in question and to do this without any editing on their part, even if the information seems trivial and/or they can only partially remember a particular aspect. Whilst a piece of information may seem unimportant to the interviewee, it may form a vital lead if actually reported. Thus, the “Report Everything” instruction, with its emphasis on
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