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Enhancing memory with the Liverpool Interview Protocol: is an association with hypnosis a problem?

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Abstract

The Liverpool Interview Protocol (LIP) is a brief memory facilitation procedure designed for use in forensic investigative interviews. However, as the LIP techniques were derived from hypnotic investigative interviewing techniques, concern has been expressed by some senior police officers about a possible negative association with hypnosis. The aim of the present study was to address this concern by investigating not only the accuracy of the LIP in facilitating memory but whether witnesses receiving the LIP judged themselves, and observers judged the witnesses, to be hypnotized using the Long Stanford Scale of Hypnotic Depth. The results showed that the LIP increased correct memory for details of a crime incident, without increasing errors or inflating confidence, whilst being no more associated by witnesses or observers with the label of 'hypnosis' than a standard interview or a rapport condition. It is concluded that a negative association with hypnosis does not appear to be a particular issue with the LIP. It is also noted that the Cognitive Interview has yet to receive similar scrutiny.

Keywords: Liverpool Interview Protocol, hypnotic investigative interviewing, memory enhancement, forensic interviewing, witness testimony

Witnesses to crime obviously play a very important role in the forensic process; hence, for more than 30 years, researchers have attempted to develop techniques to help police interviewers maximize the amount and accuracy of information that witnesses can provide. One of the most significant contributions that psychologists have made in this respect has been the development of the Cognitive Interview, which has subsequently been adopted by many police forces around the world (Fisher & Geiselman, 1992, 2010; Stein & Memon, 2002).

However, the Cognitive Interview is a complex procedure that requires substantial training to learn, and is lengthy to administer. Because of this complexity, not all police officers receive the appropriate training, and even trained officers often deviate from the procedures specified in the training. Indeed, because of the time pressures and complexities involved, many officers do not consider the Cognitive Interview to be cost-effective in everyday policing (Wilcock, & Milne, 2009; Kebbell, et al., 1999, 2001; Wheatcroft & Wagstaff, 2010). These problems have led researchers to look for shortened versions of, or brief alternatives to, the Cognitive Interview that are more cost-effective and can be used when time is at a premium (see, for example, Dando et al., 2009; Davis et al., 2005; Milne & Bull, 2002). One such alternative is the Liverpool Interview Protocol or LIP (Wagstaff & Wheatcroft, 2012a; 2012b).

The LIP is a brief memory-enhancement procedure that is designed to maximize the amount and accuracy of information a cooperative witness is capable of providing. It has been developed by psychologists in conjunction with police officers who have piloted and provided feedback on the procedures. It is presented in the form of a generic protocol format that is designed to be easy for interviewing officers to learn and apply; i.e. all officers have to do is read the instructions out to the witness or play it to them in the form of an audio recording. The instructions normally take only five or six minutes to deliver. Significantly, the LIP consists primarily of components initially derived from hypnotic investigative interviewing techniques (see Wagstaff et al., 2004a; 2004b). These are:

1. a very brief introduction;
2. an optional eye-closure instruction;
3. a brief 1.5 minute meditation/relaxation exercise;
4. a brief context reinstatement (revivication) instruction; and
5. a free-recall/report everything instruction.

Although these and similar techniques are often found in hypnotic investigative interviewing (Hibbard & Worrying, 1981; Wagstaff et al., 2004a; 2004b), they are also based on principles that have been shown in the psychological literature to enhance witness memory. For example, context reinstatement and report everything have been shown to be the most effective mnemonic techniques in the Cognitive Interview, and work well by themselves (Davis et al., 2005; Hammond et al., 2006; Milne & Bull, 2002; Wagstaff et al., 2007; 2011). Research is continuing on the exact mechanisms involved in the memory-enhancement effects of meditation/relaxation, but these may include reducing distractions, optimizing brain processing conditions, and making the witness (and interviewer) feel more relaxed, open and cooperative (Wagstaff et al., 2004a; 2004b; Wagstaff & Wheatcroft, 2012a; 2012b). Eyeclosure too may help the witness to optimize attention and reduce distractions (Perfect et al., 2008; Vredeveltdtet al., 2011; Wagstaff et al., 2004b).

A variety of studies have shown that the focused breathing and eye-closure instructions used in the LIP, both individually, and in combination, can improve memory for different kinds of information, including speech, visual material (including memory for episodes encountered some years previously), and person identification. Effects are greatest, however, when the two techniques, i.e. meditation and eye-closure, are combined. The further combination of meditation and eye-closure with context reinstatement instructions used in the LIP has also been shown to be particularly effective in enhancing memory; i.e. again the effects of the techniques are additive. Moreover, the LIP techniques have been shown to be effective with adults, irrespective of age, and children as young as six years old (Hammond et al., 2006; Wagstaff et al., 2004a; 2004b; 2007; 2011a; 2011b; Wagstaff, & Wheatcroft, 2012a).

Significantly also, although the LIP components, both individually and in combination, have been shown to reliably improve memory, the overwhelming empirical evidence to date indicates that they do not have any negative effects with regard to incorrect responses. So, for example, they do not increase false positive responses or confabulations (reporting things were present which were not), or inflate confidence in incorrect responses. Indeed, some components of the LIP, including the focused breathing instruction, have been shown to decrease errors of this kind, including the effects of misleading information (Wagstaff 2004a; 2004b; 2007; 2011a; 2011a).

Surveys of the use of the LIP in the field have also shown that, so far, the LIP has been favourably received by police officers who have been trained in its use (Wagstaff & Wheatcroft, 2012a). Nevertheless, given the LIP was derived from hypnotic investigative interviewing techniques, some senior officers from one UK police force have voiced concerns about whether a possible association of the LIP with hypnosis might affect its acceptance by the courts (personal communication). This may be important in that, although once popular, hypnosis as an investigative tool, both in forensic and therapeutic contexts, has lost favour as accumulating evidence has suggested that it often produces unacceptable levels of errors (Erdelyi, 1994; Lynn et al., 1997; Wagstaff, 1999; 2008; Webert, 2003). It is now considered that many of the problems associated with hypnotic investigative interviewing stem from label of 'hypnosis' per se which may encourage witnesses to adopt a more lax criterion for report, increasing false positive responses or confabulations, and confidence in incorrect as well as correct responses (Wagstaff, 1999; 2008; Wagstaff et al., 2004a; 2004b). Such unrealistic expectancies may also lead jurors to place spurious credibility on testimony derived using hypnosis (Wagstaff et al. 1992). In contrast, as previously noted, the overwhelming evidence indicates that, divorced from the label of hypnosis, the LIP components, both individually and in combination, do not increase in errors, false confidence or susceptibility to misleading information (indeed, they may sometimes reduce these kinds of responses). Nevertheless, given the concern that witnesses and jurors might still directly associate the LIP with 'hypnosis', the aim of the present study was to establish the extent to which the LIP might be perceived to be 'hypnosis' by witnesses and observers, and whether any self-attributions of being 'hypnotized' are related to the accuracy of, and confidence associated with, witness' memory accounts.

Although the main aim of this study was to assess any perceived association between the LIP and hypnosis, in running it, the opportunity was also taken to compare the efficacy of the LIP in facilitating memory with a 'rapport only' condition. Rapport was traditionally an important part of hypnotic investigative interviewing (see, for example, Hibbard & Worring, 1981; Wagstaff, 1982), and is now generally considered an important means of facilitating witness' memory in the field, as it may encourage witness cooperation and communication (Fisher & Geiselman, 1992; Vallano et al., 2011). Significantly, police officers using the LIP in the field and in training who have commented that the LIP procedures help to establish rapport and cooperation with the witness (Wagstaff & Wheatcroft, 2012a), which raises the issue as to whether rapport alone may account for the efficacy of the LIP. Given previous findings regarding the additive effects of the LIP mnemonic components, one would presume that the LIP would outperform a rapport condition in facilitating accurate memory; however, this hypothesis has yet to be empirically tested.

Method

Participants

The participants were 121 predominantly undergraduate students. Of these, 66 were recruited as 'witnesses' (22 males and 44 females; age 18–44; mean = 22.67, SD = 5.04), and 55 as 'observers' (12 males and 43 females; age 18–43; mean = 23.82, SD = 3.58).

Materials and procedure

Each 'witness' participant was randomly assigned to one of three conditions, LIP, Rapport or Control ($n = 22$ in each). Each witness participant viewed a short video (1 minute 15 seconds) of a hit and run road traffic incident. Following the video, witness participants in the LIP group were interviewed using the standard LIP mnemonic instructions (Wagstaff & Wheatcroft, 2012b). Thus after a very brief introduction, participants were told to close their eyes throughout the instructions that followed. They were then required to listen to a 90-second focused breathing/meditation exercise and were instructed to continue these focused breathing exercises as they completed the memory tasks (see Appendix A). Finally, following the focused breathing, participants were given a brief context reinstatement procedure. This consisted of instructions to participants to imagine themselves back in the incident and to note every detail, including sounds, smells and visual information (see Appendix B).

Participants were then given a free recall instruction: 'Please write down as many details as you can remember regarding the video you have just observed'. This was followed by a 20-question cued recall questions requiring 'yes' or 'no' answers; for example, 'Was the driver on his mobile phone as he got into his car?', and 'Was the driver wearing a grey t-shirt?' No time limit was specified for answering the questions. Participants were required to give an answer to every question and then to rate their confidence in the accuracy of each answer on a Likert scale from 1 – Not all confident to 5 – Absolutely confident.

Finally, to measure their experiences of 'hypnosis', participants were required to complete a questionnaire concerning their experiences during the procedures; included at the end of this was a retrospective version of the Long Stanford Scale of Hypnotic Depth (LSS) (Tart, 1970; Wagstaff et al., 2008). The LSS requires participants to rate the degree of hypnotic depth they experienced on a scale from, 0 'awake and alert, as you normally are', through 1 'borderline state, between sleeping and waking', 2 'lightly hypnotized', 5 'quite strongly and deeply hypnotized', 8–9 'very hypnotized,' to 10 'very deeply hypnotized'. It can also be noted here that, although primarily a measure of experiential depth, a variety of evidence suggests that the LSS appears to be as reliable and valid a measure of hypnotizability as other more complex standard suggestion based measures (see Bowers, 1983; Tart, 1970; Wagstaff et al., 2008).

Witness participants in the Rapport and Control groups were treated identically to those in the LIP group, except, after viewing the video, instead of receiving the LIP instructions, those in the Control condition were given a distractor task which involved tracking a ball around a 3-D maze. And those in the Rapport group received a rapport building protocol designed by Fisher and Geiselman (1992) for use as part of the Cognitive Interview. This included a number of rapport building techniques including an extended greeting with hand shaking. Using these procedures, the time between the video presentation and interviewing was held constant for all three groups.

During the interviews, videos were made of four interviews selected randomly from each of the three groups (Control, Rapport and LIP), giving 12 videos in all. After data from the witness participants had been collected, the observer participants were then randomly assigned to either the LIP, Rapport or Control video conditions ($n = 20, 17$ and 18 , respectively) and each was asked to view one of the four videos from his or her respective condition, and rate the extent that he or her considered the interviewee concerned to be hypnotized using the LSS. So, for example, observer participants in the video Control

condition, were randomly assigned to view one of the four videos of interviews conducted with witness participants assigned to the Control group, and so on.

Results

Memory and confidence scores

Free recall item responses given by the witness participants were scored blind as correct (corresponding with the video) or incorrect (distorted or confabulated) by two independent raters, and agreement was reached in all cases. Results for the memory data are shown in Table 1. A one-way ANOVA on the correct free recall responses showed a significant overall main effect, $F(2,63) = 13.74$, $p = .0001$, $\eta^2_p = .30$. Post hoc Tukey tests showed that the LIP group scored significantly higher than the Rapport ($p < .004$, $d = 1.04$) and Control ($p > .0001$, $d = 1.52$) groups which did not differ significantly from each other ($p > .21$). A similar analysis for errors showed no significant main effect ($F < 1.5$).

A one-way ANOVA on the total correct cued recall responses also showed a significant overall main effect, $F(2,63) = 15.06$, $p = .0001$, $\eta^2_p = .32$. And again, post hoc Tukey tests showed that the LIP group scored significantly higher than the Rapport ($p < .007$, $d = 0.97$) and Control ($p < .0001$, $d = 1.68$) groups which did not differ significantly from each other; though there was a trend for scores to be higher in the Rapport than Control group ($p < .09$).

To assess relationships between confidence and accuracy on the cued recall task, mean confidence ratings in correct and incorrect responses were calculated (see also Table 2). A 3×2 mixed ANOVA with repeated measures on the second factor (Group \times Mean Confidence in Correct/Incorrect) was conducted on these data. The analysis showed that, overall, participants were more confident in their correct (mean = 3.80, SD = 0.52) than incorrect (mean = 2.72, SD = 0.88) responses $F(1,63) = 108.54$, $p = .0001$, $\eta^2_p = .63$; which is the desired outcome in any investigative interviewing situation. However, neither of the other effects was significant ($F < 1$). In other words there was no evidence that the LIP inflated confidence in incorrect responses.

Table 1 Means and standard deviations (in brackets) for recall and confidence scores

	Free recall		Cued recall		
	Correct	Errors	Correct	Confidence correct	Confidence incorrect
LIP	24.46 (6.62)	0.23 (0.53)	16.36 (2.19)	3.91 (0.46)	2.66 (1.09)
Rapport	17.91 (6.00)	0.09 (0.29)	14.14 (2.38)	3.73 (0.69)	2.81 (0.86)
Control	14.72 (6.22)	0.32 (0.57)	12.59 (2.30)	3.77 (0.34)	2.71 (0.70)

Table 2 Medians and ranges (in brackets) for LSS hypnotic depth ratings

	Hypnotic depth interviewees	Hypnotic depth observers
LIP	0 (0-2)	2 (0-7)
Rapport	0 (0-2)	4 (0-6)
Control	0 (0-2)	3 (0-9)

Taken together, these results endorse those of previous studies showing that the mnemonic components of the LIP increase correct responses on both free and cued recall tasks, without increasing errors, or inflating confidence in incorrect responses.

Hypnotic depth ratings

Results for the LSS hypnotic depth ratings are summarized in Table 2. Given the very highly skewed nature of the data together with the high number of tied observations, analysis was limited to non-parametric testing.

The median witness LSS self-ratings and ranges for all three groups (LIP, Rapport and Control) were identical. In other words, the majority of witnesses rated themselves as normally awake on the LSS (i.e. not at all 'hypnotized'), and the very small minority of witnesses who perceived themselves to be 'lightly hypnotized' were just as likely to do so in all conditions. As the medians and ranges were the same, further statistical analysis on their differences was obviously gratuitous. Moreover, a series of Spearman's correlations ($n = 66$) between witness depth ratings and the other variables (free recall correct and errors, cued recall correct and mean confidence in cued recall correct and incorrect), showed no significant effects; the only correlation approaching significance was a trend for higher depth reports to be related to higher correct cued recall scores ($r_s = .21$, $p = .094$); the other correlations ranged from $-.03$ to $.18$. Thus even among the few participants who did consider themselves to be 'hypnotized' to some degree, there was no trend for them to show increased reporting errors.

A Kruskal Wallis test on the observer LSS ratings similarly confirmed that there was no significant difference between the three groups, $\chi^2(2) = 2.35$, $p = .309$; indeed, the highest median score was shown for the Rapport group, and the highest individual absolute scores (9) were found for observations of the Control group. Interestingly, however, as indicated in Table 2, observer ratings of hypnotic depth were significantly higher than witness self-ratings. Further Mann-Whitney U tests showed that this was the case for all groups; $z = 2.67$ ($p = .007$), 4.53 ($p = .0001$), 3.76 ($p = .0001$) for the LIP, Rapport and Control Groups, respectively.

Discussion

The experiment reported here supports a growing body of research indicating that the LIP and associated components, i.e. a brief focused breathing/meditation technique, eye-closure, and a brief context reinstatement instruction, may significantly enhance memory without increasing in errors or false confidence reports (Hammond et al., 2006; Wagstaff et al., 2004a; 2004b; 2007). Moreover, they can be relatively effective with both free and cued recall, i.e. open and closed questions (Hammond et al., 2006; Wagstaff et al, 2007). However, the present results could also be construed as having implications for the application of the LIP in field and its acceptance by the courts. As well as demonstrating a facilitatory effect on free and cued recall, without increasing errors, these results are consistent with others showing that the breathing exercises, such as that used in the LIP, which are commonly used in meditation and 'mindfulness' training, do not increase interrogative suggestibility in the same way as more traditional 'hypnotic induction' procedures which convey the idea that the person is entering a 'hypnotic state' (Wagstaff et al., 2011b; and for further comparisons of meditation versus traditional hypnotic induction

procedures see, for example, Semmens-Wheeler & Dienes, 2012). Also, witnesses interviewed using the LIP were no more likely to rate themselves, or be rated by observers, as more hypnotized than witnesses in the other conditions. This may potentially be important given the negative view of hypnotically elicited testimony adopted by Courts internationally (Wagstaff, 1999; 2008; Webert, 2003). Interestingly, however, observers in all conditions were more likely to rate the witness as hypnotized, than the witnesses themselves. Indeed when cued or prompted by the instruction to rate the depth of hypnosis, it appears that to some observers the sight of a witness simply sitting quietly answering questions was sufficient evidence for them to make the attribution that the witness was quite deeply hypnotized. Such results could be considered to support a variety of research showing that global subjective estimations by observers (even by experts) as to whether participants are hypnotized can be notoriously inaccurate and unreliable (Orne, 1959; 1971).

Given that jurors' decisions can be unduly influenced by the knowledge that testimony has been elicited under hypnosis (Wagstaff et al., 1992), it is obviously important that both jurors and jurists be suitably informed when issues relating to the use of hypnosis are raised in particular cases; however, the present results suggest that there is nothing unusually problematic about the LIP in this respect. The present results also suggest that the effectiveness of the LIP in facilitating memory is not attributable solely to the fact that it may help establish rapport. Indeed, although there were trends in the hypothesized direction, the rapport instructions used here did not result in any significant increments in performance.

To summarize, the generality of the findings presented here is obviously limited by the sample sizes involved, nevertheless, the present results can be considered to lend some support for the view that, notwithstanding its roots in the hypnosis literature and hypnotic investigative interviewing practice, for purposes of memory enhancement, the LIP may have some potential as practical, reliable and acceptable alternative to a longer Cognitive Interview when time is a premium. It may also be worth noting that, despite very real concerns expressed by some researchers about the possibility that the Cognitive Interview may involve hypnotic processes that could lead to errors (see, for example, Whitehouse et al., 2010), it has yet to be submitted to similar scrutiny. However, in this context, it may also be worth emphasizing that any interviewing procedure, including the LIP and the Cognitive Interview, is likely to increase false positive errors if undue pressure is put on the witness to remember, or unrealistic expectancies are created regarding the efficacy of the procedure to enhance memory. This is not just a problem for hypnosis.

Appendix A

Focused breathing/meditation instruction

This is a very simple focused breathing exercise designed to help you relax and concentrate. So sit comfortably; keep your spine straight; keep your back straight and focus your attention now on your breathing. As you breathe in and out in a natural manner, focus on your breathing; breathing in and out in a natural manner. Take a few deep conscious breaths but don't strain. Just focus on your breathing, breathing in and out in a natural manner. Let the flow of your breath settle into its own natural rhythm; keep focused and aware during the whole process but concentrate on your breathing, breathing in and out in a natural manner. Allow your attention to focus on the changing rhythms of your breathing; and if your attention begins to wander, gently but firmly bring it back to your breathing. Now keep focusing on

your breathing as you listen to the following instructions. Throughout the following instructions continue focusing on your breathing, breathing in and out in a natural rhythm.

Appendix B

Context reinstatement instruction

This is a very simple procedure designed to help you remember what happened during the incident you witnessed. I would like you to try and picture the events that you saw in the incident as if they were happening right now, right before your eyes. Run through what happened; try to replay the event in your head, as if it were a video that is replaying before you, which you are watching right now. What does the scene look like? Imagine you are there, look around ... try to mentally note everything that you see. Think about what you see and what is happening before you. Think about what you were doing at the time. Can you hear any sounds, or any smells associated with the event? Try to picture what happened as if you were still there, and seeing the event for the first time. Think about everything that you saw, noting every single detail, no matter how small or irrelevant it may seem, even if this seems trivial. How do you feel seeing the incident? What are your reactions to what is happening? I'd like you to keep picturing and remembering what you saw, remembering the event as you answer the following questions. Think back to what happened, playing it back in your head at any point when you need help remembering.

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