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Maximising Opportunities to Detect Verbal Deception: Training Police Officers to Interview Tactically

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Abstract

The purpose of this research was to investigate the efficacy of a novel information gathering technique for detecting truthful and deceptive verbal accounts in interview settings. Five police officers were trained to use each of the three interview techniques, namely tactical, strategic and early. Post-training, each interviewed 30 mock suspects (five truth tellers and five liars in each interview condition) who had taken part in an immersive interactive computer game, competing as either a terrorist (deceiver) or a builder (truth tellers). Post-interview, officers completed a questionnaire designed to collect veracity judgments, confidence levels and the type of interviewee behaviour that had influenced their veracity decision. Results revealed a significant advantage for detecting both deceivers and truth tellers using our new tactical procedure (67% and 74% accuracy, respectively) versus the strategic (54% and 42%) and early (53% and 47%) interviews. Additionally, when interviewing tactically, not only were interviewers more confident in their judgments but they also reported using verbal behaviour more to inform their judgments. We introduce the new tactical approach to interviewing and discuss our findings, suggesting why tactical interviewing is effective for detecting verbal deception.

Key words: verbal deception; tactical interviewing; training police officers

INTRODUCTION

When investigating wrongdoing, contradistinguishing liars and truth tellers has long exercised practitioners and researchers alike. This is particularly so during formal interviews with those suspected of wrongdoing (from herein referred to as suspects), during which interviewees are asked to provide an explanation of their involvement in an event and investigators are tasked with gathering information to assist criminal justice systems to decide whether an interviewee's account is veridical.

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The research reported here concerns just such situations, with three objectives. First, to provide a further empirical evaluation of our 'tactical' interview procedure, which employs a drip feed approach to the revelation of information items during an interview to maximise opportunities to detect verbal deception. Second, to investigate how well, or otherwise, this technique is applied by professional police interviewers. Finally, to report interviewers' performance in terms veracity judgments, each having undergone training to use (i) our tactical technique, (ii) a strategic technique, where information is not revealed until the end of the interview and (iii) an early technique, where information is revealed at the beginning of an interview.

Detecting deception

The literature reveals that deciding veracity is a complex task, with most people including professional lie catchers generally perform at around chance levels (e.g. Ekman, O'Sulivan, & Frank, 1999; Vrij, 2004, 2008; Vrij & Mann, 2001, but also see Mann, Vrij, & Bull, 2004 for an example of above chance performance). Although in the UK (and many other countries) police investigators are not concerned with deciding veracity, they are tasked with maximising the efficacy of each interview situation to uphold the rule of law and support natural justice. Accordingly, they must consider how best to manage the flow of information between interviewer and interviewee during these complex social interactions. Indeed, the current UK investigative interview model PEACE (an acronym for the stages of an investigative interview: Planning and preparation; Engage and explain; Account; Closure; Evaluate) advocates that interviewers plan and prepare for every interview, which includes considering how to manage 'evidence that suggests that he/she [suspect] might have committed an offence' and handle 'information/evidence that emerges from the interview' (Centrex, 2004, p. 86).

There exists a significant body of empirical research suggesting how cognitive effort and working memory can influence verbal indicators of deception in interview situations. In brief, deceivers often provide less detailed accounts and shorter answers than truth tellers (see Sporer & Schwandt, 2006, for a meta-analysis), behaviours thought to emanate from the increased demands on working memory associated with constructing, verbalising and maintaining a deceptive account during an interview (e.g. DePaulo, Lindsay, Malone, Muhlenbruck, Charlton, & Cooper, 2003; Sporer & Schwandt, 2006; Vrij, 2000, 2008; Vrij, Mann, & Fisher, 2006; Zuckerman, DePaulo, & Rosenthal, 1981). This is particularly so when a liar has had little time to prepare, when providing less detail can be a deliberate strategy (Vrij, 2008). By revealing as little information as possible, liars are able reduce the likelihood of contradicting themselves and/or the facts known to the interviewer and hence hope to appear truthful (Bull & Dando, 2010; Granhag, Andersson, Strömwall, & Hartwig, 2004; Hartwig, Granhag, & Strömwall, 2007).

When able to prepare, liars may formulate a lie script, believing that by planning what they are going to say they can reduce contradictions. Liars are also aware that as an interview progresses, they may have to create more complex lies in order to account for new information presented and to ensure that new lies are consistent with any previous deception (e.g. Cody, Marston, & Foster, 1984). By keeping it simple at the outset, deceivers believe that this introduces opportunities for verbal manoeuvring, thereby allowing 'flexibility' to add detail only when requested by the interviewer, and 'thinking time' should the inclusion of additional detail and/or explanations of certain behaviour become necessary (Bull & Dando, 2010). It has also been argued that because deceptive interviewees will usually be unaware of all of the

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information available to interviewers, providing a less detailed account reduces the risk of contradictions (e.g. Strömwall, Hartwig, & Granhag, 2006; Vrij, 2000).

In contrast, truthful interviewees typically just 'tell the truth', believing that as they have nothing to hide, (e.g. Colwell, Hiscock-Anisman, Memon, Woods, & Michlik, 2006), their innocence will be apparent (Gilovich, Savitsky, & Medvec, 1998; Lerner, 1980). This has been found to manifest itself in a more detailed account of the event and the inclusion of event information that is probably consistent with that known by the investigator.

Taking account of these differences, previous research in this domain has considered how best to use potentially incriminating information during an interview, advocating the revelation of this evidence in its entirety at the end of the interview, as follows: 'interrogations started with the Introduction step, followed by a free recall. . .after which the interrogator posed a number of specific questions. . .the final specific question concerned whether the suspect confessed to the crime. After this the evidence against the suspect was presented' (Hartwig, Granhag, Strömwall, & Vrij, 2005, p. 475; see also Hartwig, 2005 for a more complete description of the procedure), the intended effect is to maximise the cognitive load experienced by the suspect and help investigators plan an interview strategy based on assumptions concerning suspects' strategies (see Granhag & Hartwig, 2008).

Indeed, when asked to judge the veracity of mock suspects, 41 police recruits (trainee police officers) trained to reveal information as described previously (and who had also conducted the interviews) were remarkably accurate, obtaining an overall accuracy rate of 85.4% (truth accuracy 85%; lie accuracy 85.7%) compared with an overall accuracy rate of 56.1% (truth accuracy 57.1%; lie accuracy 55%) obtained by police officers who had not been trained (Hartwig, Granhag, Strömwall, & Kronkvist, 2006).

The current research

This paper extends the information-gathering deception detection literature in a number of ways. First, we compare the aforementioned 'late' approach to revealing information with a novel procedure that is tactical in nature and an 'early' approach. Our tactical approach constitutes an important evolution of that currently offered in the literature in that it differs markedly in its approach to the actual revelation of the information and does not solely concern itself with potentially incriminating evidence. Second, rather than using police trainees or researchers as interviewers, we utilised experienced serving police investigators to conduct our interviews with mock suspects, a necessary progression aimed at answering questions pertaining to training, practicability and forensic application. Finally, that our mock suspects all took part in an immersive, interactive computer game designed to elicit complex deceptive verbal behaviour in a laboratory setting resulted in our interviewers being in the position of having to contend with large amounts of information. Previous published research has considered just a small number of items of potentially incriminating evidence (typically 3), which we would argue falls far short of that encountered by real investigators in complex cases.

To address these concerns, we have previously introduced a tactical interview procedure (Bull & Dando, 2010; Dando & Bull, 2009, 2010) employing a 'drip feed, gradual' approach to revealing information, in which revelation occurs throughout the questioning phase of an interview rather than at the very end. Thus, it dictates that interviewers continuously evaluate the means to optimise their objective (to conduct an effective and ethical interview) and in doing so demands that the revelation of items of information (whether incriminating or not) is managed both independently and incrementally throughout the interview. Previous *strategic* techniques, however, appear to only consider

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how to use potentially incriminating evidence (this being information-concerning behaviour that has the potential to reveal deception) and moreover only evidence 'known' to the investigator, apparently viewing it as a whole, it being presented in bulk at the end of the interview, (e.g. '*the evidence was disclosed right at the end of the interrogation*', Hartwig, 2005, p. 30).

This strategic approach does not consider how best to handle information that may emerge during the interview or how large amounts of information items might be managed in such a manner as to assist investigators during an interview. In the UK immediate electronic assistance (i.e. real time digital streaming of interviews for use whilst an interview is in progress) is not available to interviewers. Hence, a strategic approach is likely to place considerable cognitive demands upon the interviewer, in terms of necessitating several concurrent cognitive operations. Interviews are dynamic situations that evolve quickly, and in the absence of any immediate assistance, officers have to recall what an interviewee has stated, in both the free account and questioning phases, and retain this information until the closing stages of the interview process. By using the strategic approach, it is not until this point that they reveal all the incriminating evidence (in bulk) and then challenge any discrepancies between (i) the interviewee's free account and questioning performance and/or (ii) an interviewee's account and the revealed information. In addition, during a strategic interview, investigators are also required to construct and pose appropriate questions concerning event information/evidence, prior to revealing that evidence, whilst also being cognizant of the information provided earlier in order to appropriately and productively challenge any discrepancies.

The distinction between strategic and tactical cognition was introduced by Miller, Galanter and Pribram (1960): 'The molar units in the organization of behaviour will be said to comprise the behavioural strategy, and the molecular units, the tactics' (p. 17). In the context of suspect interviewing, the molar units of an interview protocol constitute a strategic decision to withhold information for as long as possible. The molecular units constitute tactical decisions as to the precise time and order in which to optimise the revelation of individual pieces of evidence to the suspect. Our tactical approach inherits the strategic objective laid down as previously described, but it introduces a tactical layer of incremental evidence utilisation. It is our contention that this maximises opportunities to detect verbal deception by exploiting gaps in a liar's scripts, at the same time providing innocent interviewees early opportunity to convey their honesty.

To date, the mock suspect paradigm used to test suspect interviewing approaches has involved short crime scenarios, during which the event behaviours of the deceptive and truth telling mock suspects are usually experimentally matched apart from minor crime actions and participants' behaviour is controlled by the experimenter in terms of being instructed how to behave or what to say (Hartwig et al., 2006, 2007; Hartwig, Granhag, Stromwall, & Vrij, 2004). In most investigative settings, police and other agencies encounter complex events (e.g. multiple suspects, different patterns of deceptive and innocent behaviour, embedded lies and large quantities of information). Thus, a new mock suspect paradigm was required that is sensitive to the demands of complex deceptive behaviours and multiple items of information/evidence.

Accordingly, we used an approach in which participants created their own deceptions, rather than maintaining deceptive statements and actions presented by an experimenter. In brief, interviewees (hereafter referred to as *mock suspects*) first play an interactive virtual computer game called Dodgy Builders Ltd, in groups of four. Each player competed individually as either a 'builder' or a 'terrorist' and was striving to complete their role-specific task before the other three players did so. The builder's task was to build part of an

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Olympic stadium, whereas the terrorists' was to blow up the Olympic stadium. Terrorists were provided with a brief outline of the builders' global task in order to allow them to devise ways of appearing to be a builder, thus masking their true identity. The first player to complete his/her task wins the game.

The current study provides a test of the proposition that tactical interviewing increases overall accuracy by enhancing the detection of liars and truth tellers: that limiting a deceptive interviewee's verbal options from the very start of the questioning phase may heighten the investigative value of the available information, as well as signalling to innocent interviewees the need to account for each item of evidence/information.

METHOD

Participants

One hundred and fifty graduate and post-graduate students, with a mean age of 27.3 years (standard deviation [SD]=2.69), participated as mock suspects (78 male and 102 female participants). Interviews were conducted by five experienced police investigators from three large UK police forces (two women and three men, with a mean length of service of 19.2 years, ranging from 6 to 26 years), each of whom were advanced investigative interviewers having undergone extensive specialist police interview training (ranging from 6 months to 9 years prior to their participation in this research). Interviewers underwent 4-day training prior to participation. In brief, interviewers were initially sent a DVD (featuring example interviews) and an instruction manual, outlining each of the three interview techniques (tactical, strategic and early). Interviewers then attended 2-day face-to-face training course run by the research team, which included numerous practice interviews and extensive performance feedback.

Design and procedure

The study comprised three phases: (i) participants played an interactive, immersive computer game as either truth tellers (mock builders) or deceivers (mock terrorists); (ii) 1 hour after the game had finished players were interviewed (individually) about their gaming by one of the five interviewers; and (iii) interviewers then completed a post-interview questionnaire, which not only asked them to make a veracity judgement but also collected qualitative and quantitative information about their interview experience.

Phase one

Upon arrival, groups of four participants self-selected where they wished to sit (the role of either a 'builder' or a 'terrorist' having previously been allocated by the experimenter to each of the four seats positioned around a large table). Each participant was shown a training video on their individual laptop computer, which they listened to through headphones. These video recordings introduced the players to the software and gave instructions on how to operate it, outlined the game objectives, explained each player's individual role and the game rules. Participants were also provided with instruction cards, which could be referenced during the game. Participants competed against each other to finish their role-specific task (builder or terrorist), taking turns to traverse the game board using dice throws to determine the number of squares they could move. Players were free to travel anywhere on the board: to the shops

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(electricians and builders merchant) to purchase materials as necessary, the Olympic site and their own depots to deliver purchased materials when they saw fit. Games took approximately 1 hour. Players received a financial incentive of £24 for this phase.

Phase two

Having completed the game (when any one of the players had successfully completed their tasks), participants were individually interviewed about their gaming behaviour. Interviews commenced approximately 1 hour after the game had concluded, thereby allowing sufficient time (i) for participants to consider the post-game/pre-interview instructions and (ii) for the interviewer to plan and prepare in readiness for the interviews. Prior to interview, all participants were instructed verbatim 'Your task is to convince the interviewer that you are a builder and that you were not involved in any terrorist activity during the game'. No guidance was given to participants as to how they should carry out the aforementioned instructions in terms of how they might act, what strategies they might use or what they might say. Players received an additional financial incentive of £8 for this phase of the research.

All interviews were digitally video and audio recorded. Each interviewer conducted a total of 30 (counterbalanced for both interview condition and group) interviews over a 1-week period, 10 from each *interview* condition (tactical, strategic and early), with five participants from each *group* (deceiver and truth teller). Interviewers were blind to the experimental hypotheses and were given no base rate information about the number of deceptive or truthful interviewees they would encounter.

Interview conditions

Interviews in each of the three conditions comprised the same number of phases in the same order, differing only when (during which phase) and how information about participant's gaming (known to the investigator) was presented and where appropriately challenged.

Control (early disclosure of evidence)

An *early* interview condition was included because prior research (Milne & Bull, 1999) had revealed that many investigators often reveal all of the incriminating evidence near the beginning of an interview (e.g. in the hope that a suspect will confess). Interviews commenced with the *introduction* and *explain* phase (contact first author for full interview protocols) and moved (seamlessly) through each of the phases, as follows. In the *free recall* phase, the interviewer first disclosed all of the available 'gaming' information, listing them one piece at a time. The interviewee was instructed not to respond at this point but was instead asked (using an open-ended invitation—see Oxburgh, Myklebust, & Grant, 2010 for more on question types) subsequently to provide a *free recall* account of his/her gaming behaviour in as much detail as possible (uninterrupted by the interviewer).

Having provided a *free recall* account, the interviewer explained that some questions concerning each of the information items presented earlier in the interview would be asked. Each item/behaviour was presented (one after another), following which the interviewee was then asked to explain/account for each. Where appropriate, their replies/explanations were either (i) challenged (i.e. any discrepancies were pointed out and an explanation was invited) in order to clarify their version of events or (ii) accepted as being consistent with the information known to the investigator. Interviews concluded with the *closure* phase.

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Strategic (late disclosure of information)

The *introduction* and *explain* phases of the interviews in the strategic condition are as previously described. However, in this condition, interviewees were asked to provide a freely recalled account of their game playing (the game information was not presented at this point). The investigator then commenced the *questioning* phase by asking one question concerning each of the information items (one after another) without revealing the nature of that information. For example, the builder's task dictated that participants might follow a certain buying pattern: that because of the nature of the task demands, it appears sensible to visit the electrical shop first. If the interviewee had not visited the electrical shop, the investigator might ask the question, 'Which shop did you visit first?', thereby questioning the interviewee concerning known information without revealing what that information was or that it was known by the interviewer. The interviewer then provided the participant with an opportunity to add/alter anything he/she has stated. At this point (towards the end of the questioning phase), the interviewer disclosed all of the information known to him/her, together in bulk. The interviewee was then invited to explain/account for each. Where appropriate, the participant's account was then challenged, and the interviewee was invited to explain all discrepancies/contradictions. The *closure* phase concluded the interview.

Tactical (gradual disclosure of information)

The *introduction, explain and free recall* phases of the interviews in the tactical condition were as previously described in the strategic condition. The interviewer then commenced the *questioning* phase by explaining that some questions would now be asked about the information he/she knew concerning the manner in which the game had been played, and in addition, some of the information offered by the interviewee in the previous free recall phase (which may not have been known to the interviewer prior to the interview) might also be questioned. The information was then revealed one piece at a time. Each individual revelation was followed by an invitation to the interviewee to account for that particular information. If appropriate (i.e. when the account provided by the interviewee contradicted what the investigator knew or what the interviewee had previously stated in the free account), the interviewer challenged separately the participant's explanation/account. Each piece of evidence was similarly presented, incrementally, piece-by-piece and challenged/accepted accordingly until the interviewee had addressed each in turn. The *closure* phase concluded the interview.

Information selection

Prior to interview, investigators were presented with a printout that documented a limited amount of game information (we refer to these as case files). Games were sub-divided into a number of separate phases, (every fourth dice role signalled the end of a phase and the commencement of a new one), at which point each participant's game-playing information was recorded by the game administrator. The game phase information, included in the case files, was strictly limited to the following: (i) where an individual player had been during each of the game phases; for example, it was listed the places that he/she may have visited on the virtual game board (i.e. shops, building sites, builder's depots, etc.); (ii) the shop stock sold within that phase, allowing the investigator to calculate how many items had been purchased

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from each of the shops during that phase, although not by whom; (iii) the weight of any one participant's virtual van, selected to be weighed during that phase by the administrator and (iv) a subset of information pertaining to what was being carried in two of the four player's virtual van, where that player themselves selected two items to reveal during a van inspection. In preparation for each interviews, the investigator considered the information presented in the case files, making interview planning notes where appropriate, according to condition.

Following each interview, investigators immediately completed a questionnaire (see materials), were paid for their participation and then debriefed about the aims of the project.

MATERIALS

The investigator (interviewer) post-interview questionnaire collected quantitative data and comprised one dichotomous veracity question and four Likert style questions inviting interviewers to provide fixed answers on a scale ranging from 1 (e.g. definitely not telling the truth/not at all confident/what the interviewee said/not difficult etc.) to 7 (e.g. definitely telling the truth/very confident/how the interviewer behaved/extremely difficult).

RESULTS

Interview training check

To examine interviewers' implementation of their training across the three conditions (tactical, strategic and early), performance was rated using a scale (ranging from 1 to 5, where 1=revealed information according to condition and training/managed responses according to condition and training; 5=did not reveal information/manage responses according to condition and training). The scale was developed to assess the manner in which the gaming information was *used* (i.e. when it was disclosed and whether it was disclosed appropriately according to condition: either early in the interview, individually and incrementally throughout the questioning phase or in bulk at the end of the questioning phase), and *how* participants' replies to questions pertaining to that information was either accepted or challenged (i.e. whether replies managed according to interview condition: immediately accepted/challenged individually and incrementally or not accepted/challenged until the end of the interview, in bulk). From herein, for the purposes of this analysis, 'use' of gaming information is referred to as *information revelation*, and 'how' participant's replies were accepted or challenged is referred to as *response management* (the scoring rubric and scales are available from the first author).

Two independent raters, who were naive to the experimental hypotheses, scored each interview for information revelation and response management, using the aforementioned rating scale. Analysis revealed a substantial level of agreement between raters, Kappa=0.81, $p=0.003$. Overall mean scores as a function of interviewer, for both the aforementioned measures, indicated that all had applied their training satisfactorily (see Table 1).

To further examine interviewers' performance, a mixed analysis of variance (ANOVA), with interviewer as the between subjects factor (interviewers 1, 2, 3, 4 and 5) and interview condition (tactical, strategic and early) and veracity (deceiver and truth teller) as the within subjects factors, was conducted on ratings for (i) information revelation and (ii) response

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Table 1. Interviewers' mean overall information revelation and response management ratings

	Information revelation	Response management
	Mean (SD)	
Interviewer 1	1.90 (0.712)	1.43 (0.679)
Interviewer 2	1.80 (0.801)	1.50 (0.679)
Interviewer 3	2.01 (0.788)	1.40 (0.874)
Interviewer 4	1.98 (0.812)	1.67 (0.711)
Interviewer 5	1.67 (0.768)	1.89 (0.788)

management. A significant main effect of information revelation emerged for veracity, $F(1, 20)=7.624$, $p=0.012$, $\eta^2=0.16$ ($M_{\text{revelation deceivers}}=1.73$; $M_{\text{revelation truth tellers}}=1.97$). As expected, there was no significant main effect of interview condition. There were no significant interview/veracity/interviewer interactions (all Fs <0.810, all ps >0.455). Hence, irrespective of interview condition and/or interviewer, the manner in which information was revealed during interviews with deceivers was less in accordance with training than during interviews with truth tellers.[1] There were no significant main effects or interview/veracity/interviewer interactions for response management (all Fs <5.51, all ps >0.089).

Information items

The number of information items in each case file represents individual mock suspects' game playing behaviour; therefore, the number of information items was dictated by the manner in which each participant played the virtual game. Nonetheless, it may have been that interviewers' performance was influenced by the number of information items they used from the case file during each interview: it being sensible to assume that the fewer the information items interviewers were asked to manage, the less cognitively demanding their task and/or that if participants across the groups had played the game differently (in terms of number of movements, etc.), they might reveal their group membership (truth teller and deceiver) by virtue of marked differences in information items.

Analysis of the number of information items used during interviews as a function of (i) interview ($M_{\text{tactical info items}}=11.42$, SD=2.07; $M_{\text{strategic info items}}=10.74$, SD=2.15; $M_{\text{control info items}}=10.54$, SD=2.24), (ii) interviewer ($M_{\text{interviewer 1 items}}=11.03$, SD=2.76; $M_{\text{interviewer 2 items}}=10.89$, SD=2.04; $M_{\text{interviewer 3 items}}=10.09$, SD=1.96; $M_{\text{interviewer 4 items}}=11.24$, SD=1.71; $M_{\text{interviewer 5 items}}=10.80$, SD=2.76) and (iii) veracity ($M_{\text{deceiver items}}=11.64$, SD=1.59; $M_{\text{truth teller items}}=10.01$, SD=1.82) revealed no significant main effects or interactions (all Fs <0.920, all ps >0.439).

Veracity analysis

Using the dichotomous truth/lie judgement, when conducting interviews using the new tactical technique, interviewers obtained an overall accuracy rate of 67% for deceivers and 74% for truth tellers. Having conducted interviews using the strategic and early

[1]Despite a significant main effect of veracity, all interviewers conducted interviews across each of the conditions and as a function of group in line with the training, as indicated by overall ratings <2.01 on the training scale. Hence, veracity was excluded as a covariate.

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techniques, interviewers obtained an accuracy rate of 54% and 53% respectively for deceivers and 42% and 47% respectively for truth tellers. To fully analyse interviewer performance, a series of mixed ANOVAs, with interviewer as the between subjects factor (interviewers 1, 2, 3, 4 and 5) and interview condition (tactical, strategic and early) and veracity (deceiver and truth teller) as the within subjects factors, were conducted on interviewers' post-interview questionnaire responses (employing Bonferroni's correction). Because of the exploratory nature of this research, significant findings were investigated employing Games-Howell post hoc tests.

Lie scale

Interviewers were asked to indicate on a lie scale of 1 to 7 whether they believed each mock suspect was telling the truth or being deceptive during the interview (where 1=definitely telling the truth and 7=definitely not telling the truth). A significant main effect of veracity emerged, $F(1, 20)=15.615$, $p=0.001$, $\eta^2=0.43$, and interviewers rated deceivers as more deceptive ($M_{\text{deceivers truth scale}}=4.48$) than truth tellers ($M_{\text{truth tellers truth scale}}=3.45$). There was also a significant veracity/interview interaction, $F(1, 20)=18.87$, $p<0.001$, $\eta^2=0.43$. Interviewers were more accurate in their ratings for both deceivers ($M_{\text{tactical deceivers}}=5.88$) and truth tellers ($M_{\text{tactical truth tellers}}=2.48$) in the tactical interview conditions than in both the strategic ($M_{\text{strategic deceivers}}=3.40$; $M_{\text{strategic truth tellers}}=4.08$) and early ($M_{\text{early deceivers}}=4.14$; $M_{\text{early truth tellers}}=3.80$) conditions, with no significant difference between the latter two conditions. There were no significant interview or interviewer main effects or interactions (all Fs <0.820, all ps >0.139).

Confidence

Interviewers indicated how confident they were that their truth scale ratings were correct, on Likert style confidence scale (where 1=absolutely confident and 7=not at all confident). A significant main effect of interview type emerged, $F(1, 20)=15.458$, $p<0.001$, $\eta^2=0.47$; interviewers were more confident having conducted tactical interviews ($M_{\text{tactical confidence}}=2.08$) than in both the strategic ($M_{\text{strategic confidence}}=3.78$) and early ($M_{\text{early confidence}}=4.01$) interview conditions with no difference between the latter two. There was a significant interviewer/veracity interaction, $F(4, 20)=3.895$, $p=0.016$, $\eta^2=0.43$. Interviewer three was less confident when rating deceivers ($M_{\text{deceiver confidence 3}}=3.89$) versus the other four interviewers ($M_{\text{deceiver confidence 1}}=2.80$; $M_{\text{deceiver confidence 2}}=3.08$; $M_{\text{deceiver confidence 4}}=2.40$; $M_{\text{deceiver confidence 5}}=2.69$), with no significant differences between the latter four interviewers. No additional significant main effects or interactions emerged (all Fs <4.358, all ps >0.139).

Behaviour

Interviewers were asked to indicate what type of interviewee behaviour they had used to inform their lie scale decision, again using a Likert type scale ranging from 1 to 7 (1=only verbal behaviour; 4=both verbal and physical behaviour; 7=only physical behaviour). A significant main effect of interview emerged, $F(2, 20)=6.595$, $p=0.003$, $\eta^2=0.23$. When interviewing tactically, interviewers indicated that they used verbal behaviour more when making their lie scale decisions ($M_{\text{behaviour scale}}=2.81$) compared with when interviewing strategically ($M_{\text{behaviour scale}}=4.89$) and when interviewing using the early approach ($M_{\text{behaviour scale}}=4.04$). There were no further significant main effects or interactions (Fs $<$ 2.018, all ps >0.131).

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Difficulty

Interviewers were asked to indicate how difficult (demanding) they had found it to conduct each interview on a Likert type scale ranging from one to seven (1=not at all difficult; 7=extremely difficult).Two significant main effects emerged, that of veracity and interview type, $F(1, 20)= 19.615$, $p=0.007$, $\eta^2=0.33$ and $F(2, 20)=7.873$, $p=0.011$, $\eta^2=0.24$, respectively. Interviewers rated deceivers as more demanding to interview than truth tellers ($M_{\text{difficulty deceiver}}=4.30$; $M_{\text{difficulty truth teller}}=3.10$) and rated the tactical and early interviews ($M_{\text{tactical difficulty}}=3.80$; $M_{\text{early difficulty}}=4.20$) as less demanding than the strategic ($M_{\text{strategic difficulty}}=6.10$), with no differences between the former two conditions. No further significant main effects or interactions emerged (Fs<3.719, all ps>0.231).

DISCUSSION

This study investigated the efficacy of a new tactical approach to conducting investigative interviews with those suspected of wrongdoing versus a strategic and an early technique. Of our three objectives, the first and the third were to provide an empirical evaluation of our 'tactical' technique with professional investigators and to report their performance when deciding whether a mock suspect was being veridical.

Our results provide empirical support for our contention that interviewing tactically, where the revelation of event information occurs during the questioning phase using a drip feed gradual approach, could enhance trained professional investigators' performance, both in terms of increasing their detection of deceitful senders and assisting them to appreciate when a sender was being truthful.

The dichotomous truth/lie data revealed superior percentage accuracy performance in the tactical condition for both deceivers and truth tellers versus the strategic and early conditions. Additionally, the lie scale and confidence data revealed that tactical interviewing not only enhanced veracity performance *per se* but also strengthened lie judgments and interviewers' confidence in these judgments, for both deceivers and truth tellers alike. Conversely, in the strategic and early conditions, interviewers' strength of veracity judgments for both deceivers and truth tellers were reduced. Moreover, they were much less confident, and their judgments apparently not sufficiently polarised to allow them to discriminate reliably between deceivers and truth tellers (as indicated by the mean lie scale and confidence scale scores that hovered around the midpoint of the scale). That there were no interviewer interactions for strength of veracity judgement indicates that the lie scale task was more pronounced for *all* of our investigators in these latter two conditions.

An interviewer interaction did emerge when analysing the confidence data. However, this interviewer was significantly less confident when rating deceivers only, irrespective of interview condition. This particular police officer was the least experienced investigator (with just 6 years service), who had only completed specialist interview training 6 months previously. Nonetheless, despite finding the task of judging deceivers more demanding, this appeared not to affect her veracity performance, suggesting that this lack of confidence may emanate from less investigative expertise and reduced levels of post-training interviewing experience versus the other interviewers.

The question arises as to why the current pattern of results may have emerged when there exists empirical support for the notion that a strategic approach to conducting interviews is an effective method of enhancing veracity performance (e.g. Hartwig et al.,

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2005, 2006, 2004). We have previously argued that the tactical approach serves to limit a deceptive interviewee's verbal options from the very start of the questioning phase. Consequently, the investigative value of the available information is heightened because of the manner in which evidence was revealed and challenged incrementally, thereby disrupting the ability of deceptive interviewees to construct and verbalise a coherent and unchallenged account of the evidence/information set. Participants interviewed using the tactical procedure are asked to account for each piece of information/evidence prior to being alerted to the nature of that evidence and where appropriate are immediately challenged. Hence, deceivers are unable to remain true to any consciously created lie scripts (Hines et al., 2010; Porter & Yuille, 1996), becoming encircled in such a manner that weaknesses/discrepancies in their verbal armature are highlighted. Indeed, previous research conducted using the aforementioned paradigm, with multiple information/evidence items, revealed that mock suspects who had devised a lie script prior to being interviewed were less able to implement that script when interviewed using our tactical approach versus a strategic and early technique. Furthermore, deceivers reported finding the tactical technique significantly more cognitively demanding than both the strategic and early interviews (Dando & Bull, 2010).

Furnishing interviewees with all of the evidence/information at the start affords deceivers time to consider and then create an account to 'fit' the evidence, which they are able to present unchallenged until the closing stages of the interview. The strategic technique differs in that the evidence is not revealed early and the participants are asked to account for each behaviour during questioning without the interviewer revealing what the evidence/information is. Nonetheless, the technique does not advocate challenging an account until very late in the procedure. We argue that in common with the early condition, interviewees are again able to create and maintain what might appear to be a coherent account. Moreover, where there exists large amounts of information (be it incriminating or otherwise), a strategic approach is likely to make the interviewers' task more difficult; as was evidenced here, interviewers having rated the strategic and early techniques as being more demanding.

The incremental nature of our tactical approach, in contrast, severely limits deceptive interviewee's opportunities to verbally outmanoeuvre investigators. Therefore, deceptive interviewees are *forced* to relinquish control over verbal performance, resulting in increased cognitive load that we suggest maximises interviewers' deception detection opportunities in terms of inconsistent and contradictory verbal accounts.

In the current research, each interviewer had to manage an average of 11 items of information, a significant increase versus that utilised in the previous literature. In contrast to our tactical technique, the strategic and early approaches are such that the interviewers' primary task elements are not independent, instead having to process multiple evidence explanations simultaneously rather than sequentially, demanding high levels of interactivity that may have served to reduce task performance (see Beckmann, 2010). In addition, a tactical approach to interviewing signals to innocent interviewees the need to account for each item of information presented. Thus far, researchers have paid scant attention to truth teller detection performance. We would argue that this aspect of managing investigative interviews in forensic settings is of equal importance to that of detecting deceivers.

Turning to the type of behaviour, interviewers used to make their veracity judgments. Our data revealed that when interviewing tactically, participants' reported using verbal behaviour to inform their veracity judgments, whereas in the other interview conditions, interviewers indicated that their judgments were at least equally informed by physical behaviour. This may

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also account, in part, for reduced performance in the strategic and early conditions, it being accepted that physical, non-verbal behaviour is not a reliable indicator of deception (see Vrij, 2008). Conversely, there is much to suggest that monitoring verbal behaviour, by which we mean *what* the interviewee says throughout the interview, provides some of the more reliable cues to deception (see Bull, 2011; Vrij, 2008).

Finally, we were interested in whether professional investigators could be trained to interview tactically, in terms of unlearning old behaviour quickly. Our findings indicate that each of our investigators did implement all of the newly introduced interview techniques satisfactorily, after fairly brief training (far less than is currently afforded police officers in the UK). That stated, all had undergone previous professional interview training, which does comprise some of the elements we introduced across all of the conditions (also see Vander Sleen, 2010). Certainly, our protocols were based on the current UK investigative interview model and were delivered by a researcher who has much experience of training UK police officers at an advanced level. However, that officers were able to learn and apply our technique quickly leads us to offer its suitability for all experienced investigators.

As with all research of this nature, there are a number of limitations that should be addressed in the future. In addition to further independent replications of our findings, a larger sample of police investigators of varying levels of experience are required as participants to progress further the suitability of the technique in applied settings. A more representative sample of mock suspects would allow us to infer the efficacy of our tactical technique across wider population. As we have argued elsewhere, it is important that we assume able opponents when conducting research of this nature. Hence, despite the obvious ethical considerations, in our opinion, it is now important to conduct research using practised deceivers.

In sum, our findings indicate the efficacy of a strategic approach to conducting suspect interviews. The criminal justice system is poorly served by less than effective interviewing; it is of little value to anyone. Interviews are complex social interaction, which are pivotal to the process of upholding the rule of law and perceptions of natural justice. Accordingly, they should always be conducted with integrity and sound judgement, and it is important that we provide investigators with the tools to do just that. We would suggest that our tactical approach is one such tool, which our research clearly indicates has value as one of a repertoire of techniques suitable for use.

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