Collective Interviewing: The Use of a Model Statement to Differentiate between Pairs of Truth-tellers and Pairs of Liars

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Author Contributions

Dr Zarah Vernham, Professor Aldert Vrij and Dr Sharon Leal were all involved in the designing of the current experiment. Dr Sharon Leal did most the running of the experiment. Dr Zarah Vernham inputted the data into SPSS. Both Dr Zarah Vernham and Professor Aldert Vrij were involved in the analysing of the data. Dr Zarah Vernham prepared the manuscript for publication with input from Professor Aldert Vrij.

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Acknowledgments

Abstract

Purpose. The current experiment examined the use of a model statement for aiding lie detection and gathering additional information during interviews in which pairs of suspects were interviewed together (i.e. collective interviewing). A model statement is an example of an answer, unrelated to the topic under investigation, which is played to suspects to demonstrate how much information the interviewer wants them to provide in response to the question asked.

Method. Pairs of truth-tellers visited a restaurant together whereas pairs of liars completed a mock crime. The task for all pairs was to convince an interviewer that they were visiting a restaurant together at the time the crime was committed. Half the truth-telling pairs and half the lying pairs were exposed to a model statement whilst the other halves were not.

Results. Truth-telling pairs were more detailed and showed more interactions than lying pairs, particularly in the model statement present condition.

Conclusions. Being exposed to a model statement in a collective interview magnified the differences between pairs of truth-tellers and pairs of liars in reporting detail and interacting with one another. A model statement is simple to implement and can be applied to many real-world investigative interviewing settings whereby the focus is on lie detection and gathering as much information as possible.

Key words: lie detection, collective interviewing, information gathering, investigative interviewing, model statement.

Collective Interviewing: The Use of a Model Statement to Differentiate between Pairs of Truth-tellers and Pairs of Liars

Traditionally, and regardless of the number of individuals that need to be questioned about the same event, deception detection research has focused on individual interviewing (the interviewing of suspects separately; Granhag, Strömwall & Jonsson, 2003; Strömwall, Granhag & Jonsson, 2003; Vrij et al., 2009). Individual interviewing is perceived as ecologically valid because investigators are typically advised to separate suspects as soon as possible to increase anxiety and reduce planning of responses (Kassin & Gudjonsson, 2004). The alternative is to interview suspects together, so-called collective interviewing. This type of interviewing has certain benefits. First, it can elicit cues to deceit that cannot occur in interviews with individuals (e.g. cues associated with how the suspects interact together), and second, it can be time and cost effective: One interviewer can handle multiple suspects simultaneously. Collective interviewing is a novel and upcoming approach that deception researchers are now exploring (Vernham & Vrij, 2015).

Until recently, deception researchers have focused on number of details obtained as a cue to deceit (Vrij & Granhag, 2012), while investigative interviewing researchers have focused on increasing the quantity of details reported during an investigation (Bull, 2014). However, both detecting deception and gathering as much information as possible are core components of investigative interviewing, so should be examined together (Fisher, 2010). The current experiment aims to address both these core components of investigative interviewing through introducing a technique that should lead to novel cues to deceit whilst also eliciting more information from suspects: The use of a model statement. The use of a model statement has never been incorporated within collective interviews.

Collective Interviewing

To date, research that has implemented collective interviewing as a technique for detecting deceit has demonstrated that, compared to lying pairs, truth-telling pairs interact

significantly more with one another (Driskell, Salas & Driskell, 2012; Jundi et al., 2013; Vernham, Vrij, Leal, Mann & Hillman, 2014). This is not surprising because truth-telling groups rely on shared memories, and underlying these shared memories are three cognitive processes that become apparent whilst interacting: i) re-exposure (group members recall information that other group members have forgotten and this leads to the posing of questions to one another as a way of attempting to elicit more information that some group members may have forgotten); ii) cross-cuing (group members interrupt and add information to one another's accounts because hearing the recall of another group member prompts additional information from other group members); and iii) error-pruning (feedback from other group members creates discussions that make people realise their recall errors leading to more interactive cues, such as corrections and interruptions; Blumen & Stern, 2011; Rajaram, 2011; Ross, Blatz & Schryer, 2008). Increased interaction also leads to an increase in eye contact between group members, because people tend to look at each other when they communicate with one another (Kleinke, 1986). Of course, the three cognitive processes cannot occur when recall occurs individually. Hence, collective interviewing can lead to novel cues to deceit that cannot emerge if suspects are questioned separately. However, it is important to note that collective interviews can only be carried out if suspects claim to have been together at the time of the crime.

In addition to interaction cues, the current experiment also examined the amount of detail provided by pairs. To date, this has never been examined in collective interviews. In interviews with single suspects, liars are typically less detailed than truth-tellers (Amado, Arce, Fariña, & Vilarino, 2016; Vrij, 2008). Liars lack the imagination to invent much information that also sounds plausible and are reluctant to provide much information out of fear that the information they provide will be incriminating (Vrij, 2008; Vrij, Granhag & Porter, 2010). The same reasoning should also apply to collective interviewing.

Model Statement

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Within society there are social norms and rules that individuals try to adhere to in order to 'fit in' or be accepted within their social groups. When we consider the rules surrounding daily life conversations, it is perceived that we should summarise our answers to questions rather than provide a 'step-by-step' description or detailed response (Krauss & Chiu, 1998). Daily life conversation rules affect suspects' responses in investigative interviewing situations. Hence, even when truth-tellers are asked to report everything they can remember about an event in as much detail as possible, they will not report all that they can actually remember in an initial free recall (Vrij, Hope, & Fisher, 2014). Although truth-tellers realise that in investigative interviews they need to report more detail than they usually do in daily life conversations, they do not know how much detail is required and because they hold these daily life conversation rules, they do not report all that they know (Fisher, Milne & Bull, 2011).

Answers to interview questions that lack all available detail are problematic to investigative situations for two reasons. First, for information-gathering purposes: Incomplete answers do not meet the aim of an information-gathering interview which is to obtain an account from suspects that is as complete as possible (Fisher, 2010). Second, for lie detection purposes: Verbal cues to deceit are more likely to occur in longer statements compared to shorter statements (Vrij, Mann, Kristen & Fisher, 2007) and if truth-tellers do not say all that they can actually remember, it makes it easier for liars to appear like truth-tellers (because they need to say less to sound truthful).

A method found to successfully encourage suspects to say more is the use of a model statement. A model statement is a detailed example of an answer unrelated to the topic under investigation that is played to suspects during an interview as a way of demonstrating how much information the interviewer wants them to provide in response to the question asked. Providing an example to suspects of the amount of detail that the interviewer requires, results in suspects socially comparing their own interview answer with what they heard in the model statement (e.g. Cialdini, 1993; Festinger, 1954), which leads to suspects providing significantly more

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information (Ewens et al., 2016; Leal, Vrij, Warmelink, Vernham, & Fisher, 2015; BLINDED). A model statement also facilitates lie detection as, according to research, truthful suspects sound more plausible after hearing the model statement than deceitful suspects (Leal et al., 2015) and they include a higher proportion of complications in their statements (BLINDED), probably because liars find it difficult to provide information that sounds plausible and that includes many complications. Hence, the model statement is a useful tool for both eliciting more information and for eliciting cues to deceit.

Implementing the Model Statement into Collective Interviewing

When we discuss collective interviewing with law enforcement, the main concern they have is that multiple suspects plan for the interview together. A benefit of incorporating the model statement into the collective interview is that it exploits the effects of planning for the interview. Liars can only prepare for questions they have anticipated. Lying suspects will realise that what they have prepared in terms of detail does not correspond with the amount of detail provided in the model statement and since they have planned what to say for the interview they are likely to stick to that story, especially as they will not be able to discuss it further with the other group members once they are in the collective interview situation. Liars should therefore add less information than truth-tellers when exposed to a model statement.

As collective interviewing leads truth-telling pairs to interact significantly more than lying pairs, a model statement of a pair recalling an actual experienced event may make suspects aware that they are expected to interact greatly with each other. This should be easy for truth-telling suspects, because they have experienced the event and are naturally relying on one another to increase recall (Hollingshead, 1998; Wegner, 1987). However, lying suspects will not be able to naturally interact in the same way that truth-telling suspects do because they are not recalling a shared event and are relying on improvisation and imagination to create a 'cover story'. Additionally, truth-tellers believe the truth shines through (Gilovich, Savitsky & Medvec, 1998), whereas liars avoid communicating in a way that is stereotypically believed to be indicative of

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deceit (Köhnken, 2004). Therefore, unlike truth-tellers, liars avoid correcting one another, posing questions to one another, or interrupting one another through fear these interactions raise suspicion, hereby increasing the differences in interactions between truth-telling and lying groups (Vrij et al., 2012).

Hypotheses

Based on previous literature, we predict that truth-telling pairs will be more detailed than lying pairs, particularly in the model statement present condition (Hypothesis 1), and that truth-telling pairs will show more interactions than lying pairs, particularly in the model statement present condition (Hypothesis 2).

Method

Participants

A power analysis revealed that approximately 25 participants were needed in each condition to ensure enough power (.925) and a large effect size ($\eta_p^2 = .138$). A large effect size was used in the power analysis to ensure the research could be applied in practice (i.e. to make lie detection possible in the field, large effects are required by practitioners). A total of 242 participants (61 truth-telling pairs, 60 lying pairs) from a UK University took part in this experiment. [i] The mean age was 21.95 years ($SD = 6.10$), 164 were female, 75 were male, and 3 preferred not to say. Within the Model Statement present condition there were 108 participants (27 truth-telling pairs, 27 lying pairs), with a mean age of 21.58 years ($SD = 4.13$). Within the Model Statement absent condition there were 134 participants (34 truth-telling pairs, 33 lying pairs) with a mean age of 22.24 years ($SD = 7.33$).

Design

This experiment used a between-subjects design with Veracity (truth versus lie) as the first between-subjects factor and Model Statement (absent versus present) as the second between-subjects factor. *Total number of details* and *total number of interactions* were the dependent variables.

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Procedure

The procedure for this experiment was similar to that carried out by Vrij et al. (2009) and Vrij et al. (2012). Participants were recruited via online advertisements, the university staff and student portals, and word of mouth. All participants were told prior to signing up to the experiment that it was an experiment investigating the interactions occurring between friends and therefore they were required to sign up in pairs. Pairs were friends because this reflects real-life criminal networks, and they were randomly allocated to either the lying or truth-telling condition and then randomly assigned to either the Model Statement absent or Model Statement present condition.

Upon arrival at the laboratory, all pairs individually read and signed an informed consent form. *Pairs of truth-tellers* were then informed that the experiment was going to take place in a nearby restaurant and that a confederate would take them to the predetermined location. The confederate was an actor in the study, but participants were made to believe that he was a helper in the study who was merely assisting the experimenter in taking the pair from one location to another to ensure they went to the correct location to meet the experimenter. However, on route to the location, the confederate acted out receiving a phone call to say that the experimenter was running late and therefore, as compensation, the confederate told the pair of participants that they could buy something to eat or drink whilst they waited for the experimenter (participants were told to keep the receipt so that the money could be claimed back). The confederate informed the pair that he would return to collect them in 30 minutes if the experimenter had not arrived (at no point did an experimenter arrive to meet the pair of participants). After 30 minutes, the confederate returned to the restaurant to take the pair back to the department. When the truth-tellers arrived back at the laboratory they were told that money had been stolen whilst they were at lunch, and that, as suspects, they would be questioned about their activities in the restaurant.

Conversely, *pairs of liars* were asked to steal £10 from a pigeon hole in the admin office of the department and to return to the laboratory to be interviewed about their activities. They

were instructed to do this together and without raising suspicion. The pairs of liars were instructed to prepare an alibi, which involved them telling the interviewer that they were having lunch together in a nearby restaurant at the time the money was stolen (the lying pairs were informed of the three possible restaurants that truth-telling pairs may have attended and told to pick one as their alibi). Both the pairs of truth-tellers and pairs of liars were given as much time as they wanted to prepare themselves for their interviews but were not informed that they would be interviewed together in their pairs.

To motivate participants to perform well during the experiment, they were told that if they were believed by the interviewer they would each receive £8. However, if they were not believed they would receive no money and would be required to write a statement detailing their whereabouts during the time the money was stolen. To ensure that the experiment was ethical and equal, all participants were paid £8, and were told at the end of the experiment that the interviewer believed they were telling the truth.

Once the pairs of truth-tellers or liars indicated they were ready, they individually completed a pre-interview questionnaire. To remove friendship between the pairs from acting as a confound in the current study, the pre-interview questionnaire first required participants to rate their friendship with their study partner. Next, a manipulation check was conducted whereby participants rated their preparation discussion *(see supplementary materials for more information).*

Once the pair had completed the pre-interview questionnaire, they were then taken to a forensic interview suite whereby they were interviewed together and informed that they would be video- and audio-recorded. The interviewer was blind to the veracity status of the pairs. All pairs were first welcomed by the interviewer and reminded of what they were being accused of (i.e. stealing £10 from a pigeon hole in an office within the department). If the pair had been allocated to the *Model Statement absent* condition, they were then asked nine interview questions (see Table 1). If the pair had been allocated to the *Model Statement present* condition, the interviewer

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informed the pair that before s/he started asking the interview questions that s/he was going to play the pair a model statement as an example of a detailed account obtained from a pair of truth-tellers being interviewed collectively. The topic of the model statement was unrelated to the topic under investigation in the current experiment and was in fact an example of a real-life truth-telling pair who had participated in a previous collective interviewing experiment in which they were asked to recall a memorable day together (Vernham et al., 2014). Once the model statement had been played, the interviewer asked the same nine questions as those asked in the control condition. However, the interviewer specifically asked the participants to try to provide a similar amount of detail as was provided in the model statement. In both conditions, the interviewer never stated who in the pair had to answer each question, therefore the pair could choose which member responded and each member of the pair could say as little or as much as they wanted. Once all nine questions had been asked, the pair left the interview suite.

Insert Table 1 about here

Following participation, a post-interview questionnaire was completed individually and at this stage all participants were instructed to be truthful about their experience of the interview and the strategies they used. To control for potential confounds and run manipulation checks, the post-interview questionnaire required participants to rate the extent to which they felt motivated to appear convincing during the interview. Additionally, participants rated their confidence in receiving £8, their confidence about whether or not they would have to write a statement, the extent to which they expected to be interviewed collectively, and the extent to which they found being interviewed collectively easy or difficult to do *(see supplementary materials for more information)*. Pairs in the Model Statement present condition were asked additional questions in which they had to rate the extent to which the model statement helped them to provide an answer that appeared more truthful to the interviewer, the extent to which hearing the model statement made them provide more details than they had originally planned, and the extent to which hearing the model statement made them interact more with their partner than they normally would (all on

7-point Likert scales from [1] not at all to [7] definitely). Once the post-interview questionnaire had been completed by both participants in the pair, they were each thanked for their time, fully debriefed, and provided with the opportunity to ask the experimenter questions. The procedure used in the current study reflects a procedure that is used in many deception detection studies (e.g. Nahari & Vrij, 2014; Granhag, Mac Giolla, Strömwall, & Rangmar, 2013). The whole study took pairs of participants 45-60 minutes to complete.

Coding

All 121 interviews were transcribed, and the interview transcripts were each coded by a rater who was blind to the hypotheses and veracity status of the pairs.

Total number of details were coded by counting the frequency of *visual details* (e.g. "We sat on two blue chairs"), *spatial details* (e.g. "We were next to the toilets, behind the bar"), *temporal details* (e.g. "After 20 minutes of talking our food arrived, so we then ate"), *auditory details* (e.g. "We could hear the bell chiming from the Guildhall whilst we talked about what we were going to be doing after our undergraduate degrees"), and *action details* (e.g. "We walked around and looked for somewhere to sit"). Total number of details provided by each pair was calculated by adding together the frequency of each type of detail across all nine interview questions. Details were only coded once throughout each interview; hence, the same information was never coded more than once.

Total number of interactions were coded by counting the frequency of *correcting one another* (number of times one member of the pair corrected information that their partner had said), *interrupting one another* (number of times one member of the pair disrupted the other participant in their pair and took over the conversation), *agreements* (number of times each participant in the pair supported one another or confirmed details that their partner had provided), *repetitions* (number of times a participant repeated information that their partner had just provided), *posing questions to one another* (number of times a member of the pair asked their interview partner a question, usually to check information or find out information), *providing*

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cues to one another (number of times members of the pair cross-cued – that is, when one member of the pair stated something that reminded their interview partner of additional information), *finishing each other's sentences* (number of times one member of the pair started saying something and then the other member of the pair interrupted and spontaneously finished off their sentence), *additions* (number of times one member of the pair provided new or different details in response to something their partner had just said), and *jokes/sarcasm* (number of times one member of the pair made jokes against or criticised the other member of the pair). Total number of interactions presented by each pair was calculated by adding together the frequency of each type of interaction across all nine interview questions.

A second coder, also blind to the hypotheses and veracity status of the pairs, coded 28 of the 121 transcripts for each of the variables that made up the two final dependent variables; total number of details and total number of interactions. Intra-class correlation coefficients (ICCs) were calculated between the two individual raters for each of the variables. The inter-rater reliability between the two coders was very good with each of the ICCs demonstrating excellent agreement between the two raters on all variables that made up total number of details (ICCs ranged from .90 to .99) and all variables that made up total number of interactions (ICCs ranged from .80 to .97). The ICC for total number of details was .98 and for total number of interactions was .95.

Results

Please refer to the supplementary material for statistical analyses examining participant interview preparation, participant motivation and confidence, and participant perceptions of collective interviewing.

Interview length

The model statement lasted 2.06 minutes and therefore this was subtracted from the total interview length of all the interviews that involved the use of the model statement. Consequently, interview length was calculated from the moment the interviewer asked the first interview

question to the moment the pair finished answering the last interview question. A 2 (Veracity: truth vs. lie) x 2 (Model Statement: absent vs. present) between-subjects ANOVA with *interview length* as the dependent variable revealed that there were no significant main effects of Veracity, $F(1, 117) = .18$, $p = .675$, $\eta_p^2 = .00$, $d = .10$, 95% CI [-.26, .45], or Model Statement condition, $F(1, 117) = 2.27$, $p = .135$, $\eta_p^2 = .02$, $d = .27$, 95% CI [-.10, .62], nor was there a significant Veracity X Model Statement interaction effect, $F(1, 117) = 1.77$, $p = .185$, $\eta_p^2 = .02$.

Covariates

To examine whether we needed to incorporate interview length, collective interviewing expectedness, collective interviewing difficulty, or degree of friendship as covariates when testing our hypotheses, Pearson's correlation analyses were conducted to test the association between each of these variables and the two dependent variables: Total number of details and total number of interactions (see Miller & Chapman, 2001). The correlations revealed that there were significant associations between total number of details ($M = 137.73$, $SD = 53.66$), and interview length, $r(121) = .59$, $p < .001$; collective interviewing expectedness, $r(121) = .20$, $p = .026$; and collective interviewing difficulty, $r(121) = -.28$, $p = .002$. Additionally, the correlations revealed that there were significant associations between total number of interactions ($M = 55.50$, $SD = 35.35$), and interview length, $r(121) = .56$, $p < .001$; collective interviewing expectedness, $r(121) = .21$, $p = .019$; and collective interviewing difficulty, $r(121) = -.25$, $p = .005$. No significant correlations were found between degree of friendship and total number of details ($p = .270$) or total number of interactions ($p = .101$). Hence, only interview length, collective interviewing expectedness and collective interviewing difficulty were required as covariates in all future analyses.

Insert Tables 2 and 3 about here

Hypothesis Testing: Total Number of Details

A 2 (Veracity: truth vs. lie) x 2 (Model Statement: absent vs. present) between-subjects ANCOVA was conducted with *total number of details* as the dependent variable and interview

length, collective interviewing expectedness, and collective interviewing difficulty, as covariates. The ANCOVA revealed a significant main effect for Veracity (see Table 2), as well as a significant Veracity X Model Statement interaction effect, $F(1, 114) = 7.71$, $p = .006$, $\eta_p^2 = .06$. No significant main effect for Model Statement was obtained, $F(1, 114) = 1.64$, $p = .203$, $\eta_p^2 = .01$, $d = .36$, 95% CI [-.03, .70]. Truth-telling pairs provided significantly more details than lying pairs (see Table 2). A simple main effects analysis demonstrated that truth-telling pairs provided significantly more details than lying pairs in both the Model Statement absent condition ($M = 154.89$, $SD = 54.16$, 95% CI [139.86, 169.92] and $M = 102.89$, $SD = 31.56$, 95% CI [87.63, 118.15], respectively), $F(1, 114) = 25.37$, $p < .001$, $\eta_p^2 = .18$, $d = 1.17$, 95% CI [.59, 1.61], and the Model Statement present condition ($M = 181.63$, $SD = 49.47$, 95% CI [164.76, 198.50] and $M = 114.79$, $SD = 37.66$, 95% CI [97.93, 131.66], respectively), $F(1, 114) = 69.03$, $p < .001$, $\eta_p^2 = .38$, $d = 1.52$, 95% CI [.83, 2.03]. The effect size was larger in the Model Statement present condition than in the Model Statement absent condition, which supports Hypothesis 1.

Hypothesis Testing: Total Number of Interactions

A 2 (Veracity: truth vs. lie) x 2 (Model Statement: absent vs. present) between-subjects ANCOVA was conducted with *total number of interactions* as the dependent variable and interview length, collective interviewing expectedness, and collective interviewing difficulty as covariates. The ANCOVA revealed no significant main effect of Veracity, $F(1, 114) = .12$, $p = .728$, $\eta_p^2 = .00$, $d = .18$, 95% CI [-.18, .53], but a significant main effect for Model Statement emerged with the Model Statement present condition leading to significantly more interactions than the Model Statement absent condition (see Table 3). Additionally, the Veracity X Model Statement interaction effect was significant, $F(1, 114) = 5.03$, $p = .027$, $\eta_p^2 = .04$. A simple main effects analysis demonstrated that truth-telling pairs ($M = 41.33$, $SD = 24.74$, 95% CI [30.80, 51.86]) and lying pairs ($M = 38.95$, $SD = 29.47$, 95% CI [28.26, 49.64]) provided a similar amount of interactions in the Model Statement absent condition, $F(1, 114) = 1.76$, one-sided $p = .094$, $\eta_p^2 = .02$, $d = .09$, 95% CI [-.40, .56]). In the Model Statement present condition, however,

truth-telling pairs ($M = 80.63$, $SD = 36.53$, 95% CI [68.81, 92.45]) provided significantly more interactions than lying pairs ($M = 68.46$, $SD = 33.89$, 95% CI [56.64, 80.28]), $F(1, 114) = 2.95$, one-sided $p = .044$, $\eta_p^2 = .03$, $d = .35$, 95% CI [-.21, .86]). The effect size was larger in the Model Statement present condition than in the Model Statement absent condition, which supports Hypothesis 2.

Participant perceptions of the model statement

A one-way between-subjects MANOVA was conducted to examine if there were any significant differences between truth-tellers and liars in terms of whether they felt the model statement helped them (i) to appear more deceitful or more truthful to the interviewer; (ii) to provide more details or less details than they had originally planned; or (iii) to be more interactive or less interactive with their partner than they normally would be. The MANOVA revealed a significant multivariate main effect for Veracity, Wilks' $\lambda = .73$, $F(6, 101) = 6.17$, $p < .001$, $\eta_p^2 = .27$. Liars reported that they felt the model statement made them appear more deceitful to the interviewer than truth-tellers (see Table 1). No significant differences were found between truth-tellers and liars for any of the other variables (F-values ranged from .03 to 3.00; p-values ranged from .086 to .866).

The Likert scale ratings were examined more closely to explore how participants evaluated the model statement. These Likert scale ratings demonstrated that participants, regardless of Veracity, felt the model statement helped them to provide more details: 70% of the sample scored 5 or higher on the 7-point Likert scale, but felt the model statement did not impact upon how they interacted with their partner: Only 40% of the sample scored 5 or higher on the 7-point Likert.

Discussion

It was predicted that truth-telling pairs would be more detailed than lying pairs, particularly in the model statement present condition (Hypothesis 1), and that truth-telling pairs would show more interactions than lying pairs, particularly in the model statement present

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condition (Hypothesis 2). The findings of the current experiment found support for both hypotheses. A model statement resulted in additional information and magnified *detail* and *interactions* (or lack of) as a diagnostic cue to deceit. This is the first experiment in which the use of a model statement has resulted in the amount of detail being a more diagnostic cue to deceit than when no model statement is used. However, whilst truth-tellers provided significantly more details in both the model statement absent and model statement present conditions, than liars, both truth-tellers and liars provided additional information in the model statement present condition. Thus, additional detail as such cannot be used as a cue to truthfulness. Yet, obtaining additional detail is useful in investigative interviews because the content of that additional detail may contain cues to deceit. For example, previous model statement work showed that the additional information provided by truth-tellers contained many complications (BLINDED) and the additional information provided by liars sounded implausible (Leal et al., 2015).

Liars felt they were viewed as more deceitful by the interviewer when the model statement was played compared to when it was not, suggesting that liars found it difficult to implement what the model statement exhibited into their own interview response. In terms of expectations, whilst both liars and truth-tellers recognised the need to provide more details following the model statement (something truth-tellers were indeed more capable of doing than liars), neither group seemed to recognise the need to also interact more in order to appear truthful (the model statement used in the current study was taken from a real truth-telling couple being interviewed collectively and previous research demonstrates that truth-tellers pairs interact significantly more than lying pairs; Driskell et al., 2012; Vernham et al., 2014; Vrij et al., 2012). This suggests that in the model statement, 'details' were easier to recognise than 'interactions'. Perhaps this was due to the interviewer's instruction to provide a similar amount of detail as was provided in the model statement, but not a similar amount of interactions. Alternatively, it is possible that participants did notice the interactions but failed to recognise the importance of them and merely considered them to be a means to provide many details. Future research should

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explore whether informing suspects of the cues to listen out for in the model statement results in stronger differences between truth-telling and lying suspects than when they are not informed of cues. This is likely to be the case because truth-tellers should find it easier than liars to 'copy' the interaction cues into their own verbal recalls.

Practical Implications

The use of a collective interviewing approach and the incorporation of a model statement has numerous advantages: (1) a model-statement-present interview results in more information than a model-statement-absent interview, which is useful in any investigative situation; (2) the use of a model statement in a collective interview magnifies the differences between truth-tellers and liars; (3) collective interviewing is time and cost effective because one interviewer can handle multiple suspects simultaneously; and (4) incorporating a model statement requires no training or interview skills as the investigator just needs to press play on an audiotape.

Importantly, there are multiple situations whereby investigators can utilise the model statement within a collective interview (e.g. security checkpoints, immigration interviews, house to house enquiries). However, the findings of the current study are only generalisable to situations whereby pairs of suspects claim to have been together at the time the crime took place. The model statement should be used alongside other strategies found to gather information and increase cues to deceit (e.g. the Strategic Use of Evidence; Tekin et al., 2015; Tekin, Granhag, Strömwall, & Vrij, 2017). After all, the more strategies we have in place to increase information-gathering and elicit cues to deceit, the more likely we are to accurately differentiate between truthful and lying suspects.

We do not recommend individual interviewing is replaced by collective interviewing, which is the reason why an individual interviewing condition was not included within this experiment. Instead, we suggest that collective interviewing be employed as a new or additional approach to individual interviewing. Therefore, the collective interview could be used in isolation (i.e. without ever conducting individual interviews) so that if the group raises suspicion in a

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collective interview, the investigator takes the required actions that they would normally take after interviewing individuals who raise suspicion (e.g. calling for assistance, collecting further evidence). Alternatively, collective interviewing could act as an initial screening process to determine whether suspects then need to be interviewed individually. Similarly, the model statement could be used in the same way: If, following the implementation of the model statement, the pair raise suspicion or do not prove their innocence, then additional actions/strategies should be conducted.

Limitations and Future Research

First, whilst there is clear potential for using collective interviewing, there are limitations that should be discussed. Human memory is susceptible to misinformation from a variety of sources, including other people (Loftus, 2005). Consequently, collective interviewing may lead to memory contamination (whereby one group member leads other group members to remember information incorrectly; Gabbert, Memon, & Allan, 2003) or collaborative inhibition (the effect that occurs when a group of people working together remember and recall more than any one individual but recall less than their predicted potential; Weldon & Bellinger, 1997). Collaborative inhibition could be a result of retrieval disruption (each individuals' organisation of the material is interrupted by the way the other group members recall the information) and retrieval inhibition (other people's non-cue words supress memory representations making them unavailable to retrieve; Barber, Harris, & Rajaram, 2014). Although collaborative inhibition needs to be considered when interviewing collectively, it is important to remember that group collaboration can also aid memory and thus diminish any collaborative inhibition effects (e.g. due to re-exposure, cross-cueing and error-pruning; Blumen & Stern, 2011; Rajaram, 2011; Ross et al., 2008).

Second, the current experiment used a between-subjects rather than a within-subjects design. A within-subjects design would enable us to examine whether the effects of collective interviewing and the model statement remain even when suspects are questioned twice; once

without hearing the model statement and again after hearing the model statement. This within-subjects design would have practical value because it does not require a truth-telling control group and law enforcement prefer such designs (Vrij, 2016).

Third, the current study (as with all laboratory studies) involved lows-stakes (i.e. participants only had £8 to lose if they were not believed), which may not reflect all real-life situations. Whether stakes would affect the findings of the experiment is unclear, but we cannot think of a convincing theoretical argument that it would. A meta-analysis in which the effect of stakes was examined, did not find an effect. That is, differences between truth-tellers and liars were similar in low-stakes and high-stakes situations (Hartwig & Bond, 2014).

Finally, pairs within the current experiment were friends. Whilst this reflects some real-life criminal networks and the need for mutual trust and a social structure to be in place for criminal networks to form (e.g. Duijn, 2016), we cannot be certain that our findings would generate to situations whereby pairs of strangers are interviewed collectively. Given that memory plays a large role in information-gathering and cues to deceit, it is likely that the findings would remain the same regardless of degree of friendship, because the amount of information disclosed, and the number of interactions elicited is more related to the existence of a true memory than to how well the pair know each other.

Conclusion

Being exposed to a model statement in a collective interview resulted in more details being provided and magnified the differences between pairs of truth-tellers and pairs of liars in reporting detail and interacting with one another. A model statement is easy to implement and can be implemented in many investigative interviewing settings.

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Table 1: A list of the nine interview questions used in the current study.

Interview questions
1. 'Can you tell me in as much detail as possible what you did while you were in the restaurant?'
2. 'What topics did you discuss whilst you were in the restaurant?'
3. 'What foods and drinks were available to have on the menu?'
4. 'Can you tell me in as much detail as possible about the layout of the restaurant?'
5. 'In relation to the front door, where did you and your friend sit?'
6. 'In relation to the front door and where you sat, where were the closest customers?'
7. 'What was the seating arrangement of the customers closest to you?'
8. 'Did you notice anything about your fellow customers? This could include conversations they are having, their behaviours, food choices, etc.'
9. 'What was the order in which you discussed the topics that you mentioned earlier?'

Table 2: Veracity significant main effects.

Variable	Truth-tellers	Liars	*F*	*p*	*d* (95% CI)
	Mean (*SD*) *95% CI*	Mean (*SD*) *95%CI*			
Pre-questioning questionnaire					
Usefulness	04.30 (01.90) *03.82 – 04.77*	06.04 (01.07) *05.78 – 06.31*	40.01	**<.001**	1.13 (0.79, 1.33)
Thoroughness	04.27 (01.78) *03.79 – 04.79*	05.54 (01.26) *05.27 – 05.83*	18.77	**<.001**	0.82 (0.51, 1.04)
Sufficient	04.57 (01.94) *04.09 – 05.05*	05.84 (01.05) *05.57 – 06.12*	21.09	**<.001**	0.81 (0.50, 1.03)
Quality	04.37 (01.81) *03.93 – 04.82*	05.93 (00.98) *05.68 – 06.18*	36.13	**<.001**	1.07 (0.74, 1.27)
Discussion	03.60 (01.85) *03.10 – 04.05*	05.48 (01.10) *05.22 – 05.75*	48.85	**<.001**	1.23 (0.89, 1.43)
Post-questioning questionnaire					
Motivation	05.59 (01.70) 05.*34 – 05.81*	06.36 (00.76) *06.12 – 06.60*	20.89	**<.001**	0.58 (0.29, 0.81)
Confidence: £10	05.98 (01.21) 05.*75 – 06.21*	05.14 (01.35) *04.94 – 05.40*	24.38	**<.001**	0.66 (0.36, 0.87)
Confidence: Writing statement	02.40 (01.32) 02.*15 – 02.67*	03.95 (01.58) *03.69 – 04.21*	66.88	**<.001**	1.07 (0.74, 1.27)
Collective interviewing					
Difficulty	02.21 (00.99) *01.89 – 02.54*	03.33 (01.51) *02.98 – 03.64*	21.95	**<.001**	0.89 (0.56, 1.09)
Degree of friendship	24.03 (03.44) *23.45 – 24.70*	22.95 (03.55) *22.34 – 23.60*	06.00	**.015**	0.31 (0.04, 0.54)
Number of details					
Total	166.72 (53.41) *156.96 – 179.56*	108.25 (34.66) *97.47 – 120.22*	84.59	**<.001**	1.30 (0.83, 1.61)
Use of a model statement					
Deceitful appearance	02.20 (01.19) *01.79 – 02.61*	03.61 (01.80) *03.20 – 04.02*	23.08	**<.001**	0.92 (0.31, 1.43)

Table 3: Model Statement significant main effects.

Variable	Absent	Present	F	p	d (95% CI)
	Mean (*SD*) 95% CI	Mean (*SD*) 95%CI			
Collective interviewing					
Expectedness	03.81 (01.60) *03.38 – 04.22*	04.65 (01.90) *04.18 – 05.12*	07.12	**.009**	0.48 (0.09, 0.82)
Total number of interactions	40.16 (26.99) *32.63 – 47.64*	74.54 (35.44) *66.18 – 82.90*	34.63	**<.001**	1.11 (0.66, 1.42)

[i] The current project forms part of a larger project. In the other part of the project, collective interviewing was examined across three different cultures: British, Arabic and Chinese (AUTHOR NAMES DELETED FOR ANONYMOUS REVIEW). 49 pairs from the control group (no model statement) in the current study formed the 49 British pairs in the other study.