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ORIGINAL ARTICLE

Outsmarting the Liars: The Benefit of Asking Unanticipated Questions

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Abstract We hypothesised that the responses of pairs of liars would correspond less with each other than would responses of pairs of truth tellers, but only when the responses are given to unanticipated questions. Liars and truth tellers were interviewed individually about having had lunch together in a restaurant. The interviewer asked typical opening questions which we expected the liars to anticipate, followed by questions about spatial and/or temporal information which we expected suspects not to anticipate, and also a request to draw the layout of the restaurant. The results supported the hypothesis, and based on correspondence in responses to the unanticipated questions, up to 80% of liars and truth tellers could be correctly classified, particularly when assessing drawings.

Keywords Deception · Unanticipated questions · Consistency

PAIRS OF SUSPECTS AND THE CONSISTENCY BETWEEN THEM

In criminal investigations it is often critical to know whether the suspect is lying or telling the truth. Nevertheless, a substantial empirical base shows that trained investigators (e.g., police), like most other people, often discriminate poorly between liars and truth tellers (Bond & DePaulo, 2006; Vrij, 2004, 2008). Recently, it has been shown that investigators may increase their ability to detect deceit when they use specific theory-based interviewing strategies (Granhag & Hartwig, in press; Granhag, Strömwall, & Hartwig, 2007; Hartwig, Granhag, Strömwall, & Kronkvist, 2006; Hartwig, Granhag, Strömwall, & Vrij, 2005; Vrij, Fisher, Mann, & Leal, 2006; Vrij & Granhag, 2007; Vrij et al., 2007a; Vrij, Mann, Kristen, & Fisher, 2007b). For example, Granhag et al. employed the strategy of "withholding information" to elicit contradictions between liars' statements and physical evidence. Similarly, Vrij et al. used the strategy of "imposing cognitive load" to create high cognitive processing demands of liars. Both of these strategies successfully increased the differences between liars and truth tellers. In the present experiment we examined the strategy of "asking unanticipated questions", which we expected to elicit contradictions between pairs of liars and thereby enhance the ability to detect deception.

Often, people commit crimes with others rather than on their own, and this may provide investigators with a possible interview strategy. Investigators could interview a group of suspects individually and examine the similarities between the suspects' statements. This is indeed what investigators do. If investigators interview individual suspects once (with no factual information about the case), they tend to rely more on nonverbal cues than verbal cues to detect deceit (Mann, Vrij, Fisher, & Robinson, 2008; Vrij, 2008, in press). However, when investigators have access to multiple statements from different persons they change tactics. In such cases, investigators overwhelmingly tend to focus on speech content. In particular, they examine the consistency between different statements, believing that

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consistency implies truth telling and inconsistency implies lying (Granhag & Strömwall, 1999, 2000, 2001a, b; Granhag, Strömwall, & Jonsson, 2003; Strömwall & Granhag, 2005; Strömwall, Granhag, & Hartwig, 2004; Strömwall, Granhag, & Jonsson, 2003). The problem with a lie detection strategy based on consistency is that the underlying assumption that pairs of liars are more inconsistent than pairs of truth tellers is unreliable. In fact, the only study published to date examining the consistency between statements provided by pairs of truth tellers and pairs of liars found that liars were more consistent than truth tellers (Granhag et al., 2003).

The high consistency amongst liars can be explained by the argument that liars prepare for the interview. Pairs of liars know that it is crucial to plan and discuss together the facts of their fabricated story so that they "get their stories straight" (Granhag et al., 2003). If pairs of liars do not do this they run the risk of each providing statements that are inconsistent with one another, thereby raising doubts about their truthfulness. By comparison, pairs of truth tellers are less likely to prepare for the interview, perhaps because they believe that the truth shines through anyway (*illusion of transparency*, Gilovich, Savitsky, & Medvec, 1998). As such, whilst truth tellers may also think that it is important that their two statements are consistent, they may think that this will happen naturally without having to prepare. As a result, liars will respond in interviews by reporting what they have agreed upon, whereas truth tellers will try to recall what they have truly experienced (cf. Granhag et al.'s "repeat versus reconstruct" hypothesis). Hence, liars' "agreeing upon a story" strategy may result in more consistency between statements than truth tellers' "tell it as it was" strategy.

Liars' "agreeing upon a story" strategy has weaknesses that investigators can exploit. Specifically, this strategy is limited in its utility: It may work, but only if liars anticipate correctly the questions that will be asked. If investigators ask questions that the liars did not anticipate, the liars will not be able to use their planned answers. Answering such unanticipated questions may yield inconsistent answers. Liars can refuse to answer these unanticipated questions—to ensure that they do not contradict each other—but such "Don't know" or "Can't remember" answers will create suspicion if the questions are about central aspects of the event, which suspects should be able to answer. Asking unanticipated questions about central topics should therefore give rise to tell-tale inconsistencies amongst pairs of liars. By comparison, it should have less of an effect on truth tellers since both members of the pair can rely on their memory of the event to provide consistent answers.

In the present experiment, pairs of truth tellers went out for lunch, whereas pairs of liars stole money hidden in a room. Truth tellers and liars were informed that they would be interviewed *individually* about what had happened at lunch-time. Liars were instructed to use as an alibi that they had lunch together in a certain area of the town. Both truth tellers and liars were given the opportunity to prepare themselves for the interview (as a pair), and were interviewed individually. The interview started with typical opening questions that we thought the liars would anticipate (e.g., "Can you tell me in detail what you did while you were in the restaurant?"). Such questions are generally recommended in the investigative interviewing literature (Fisher & Geiselman, 1992; Milne & Bull, 1999; Powell, Fisher, & Wright, 2005; Yuille, Hunter, Joffe, & Zaparniuk, 1993). These opening questions were followed by questions that we expected suspects not to anticipate. We split these unanticipated questions into two categories: (i) spatial questions (e.g., "In relation to the front door and where you sat, where were the closest diners?") and (ii) temporal questions (e.g., "In which order did you discuss the different topics you mentioned earlier?"). Furthermore, we asked participants to draw the layout of the restaurant. We hypothesised that the pairs of liars would be more inconsistent than the pairs of truth tellers, but only in answering the unanticipated questions (spatial and temporal questions and drawing the restaurant).

DELAY

There was one additional experimental factor: the participants were interviewed either immediately after the event or 1 week later. We expected this to affect the amount of detail provided in the interview. We know from previous research that when suspects are interviewed immediately after an event, truth tellers typically provide more details than liars (Vrij, 2005, 2008). What would happen in the delay condition? Truth tellers may well have forgotten some of the details they experienced, and should therefore provide fewer details in the delay condition than in the immediate condition. Liars in the delay condition might feign forgetting by saying that they cannot remember the details, and also provide fewer details in the delay condition. However, liars typically do not take their credibility for granted and are keen to make a convincing impression (DePaulo et al., 2003; Kassin, 2005; Kassin & Gudjonsson, 2004; Kassin & Norwick, 2004). They may well think that failing to respond (feigning memory failure) will hamper their credibility, and thus may try to provide detailed statements. We expect therefore that truth tellers will provide more details than liars, but mainly in the immediate condition.

METHOD

Participants

Eighty undergraduate students, 13 males and 67 females, participated. Their average age was $M = 19.36$ ($SD = 2.29$) years.

Procedure

The event was modified from Granhag et al. (2003). Pairs of participants were recruited under the guise of a study about social interaction.

Truth Tellers

On arrival at the Psychology Department laboratory, each pair of truth tellers (20 pairs, 40 truth tellers in total) was told that the study would take place at Gunwharf, a shopping centre near the Psychology Department. An experimenter (Sharon) brought the pair to Gunwharf. On the way Sharon pretended to receive a text message saying that the experiment is running late. She therefore brought the pair of participants to one of three restaurants and told them that they can spend up to £15 on lunch (but no alcohol) and that she will pay the bill. Three research-assistant observers were already in the three designated restaurants to check that all pairs would have lunch and stay in the restaurant (all pairs did). After 45 min Sharon returned to the restaurant and paid the pair's bill. The pairs in the *immediate condition* ($N = 20$ participants) were told that, as the study was running late, the format had changed slightly and that the study would be carried out in the Psychology Department. Pairs in the *delay condition* ($N = 20$ participants) were told that that we were unable to run the study today and that they should return to the department at the same time a week later (all pairs did return 1 week later).

When the participants returned to the Psychology Department laboratory, a second experimenter (Jackie) told each pair of truth tellers that they were both suspected of having committed a crime (taking two £5 notes out of a room) during the last 45 min (immediate condition) or when they had lunch together last week (delay condition) and that in about 10 min they would be interviewed individually about their alibi. They were told that their task is to convince the interviewer that their alibi is true, having lunch together in Gunwharf. The interviewer did not know if the alibi was true but made a judgement at the end of the interview. To motivate the participants to perform well during the interview they were informed that if the interviewer believed the participant, they would be paid £10; in contrast, if she did not believe the participant, they would not receive any money, and may be asked to write a statement about their whereabouts during lunch-time instead. The pairs were then left alone together for 10 min. After 10 min each pair was taken to two different cubicles to fill out individually the pre-interview questionnaire. The questionnaire asked about the participant's gender and age, and whether he or she had discussed an interview strategy together with the other participant (yes/no). In addition, the participants were asked to draw the layout of the restaurant, to include the following six features: (1) where you sat, (2) where your friend sat, (3) men/women toilets, (4) the front door, (5) where the food came from and (6) where the closest diners to you both sat.

After completing the questionnaire each participant was taken individually into the interview room. After the interview the participants individually completed the post-interview questionnaire, which asked (i) how motivated they were to perform well during the interview (7-point Likert scale ranging from [1] very unmotivated to [7] very motivated); (ii) to estimate the likelihood of receiving £10 and having to write a statement (both on 7-point Likert scales ranging from [1] very unlikely to [7] very likely); and (iii) to what extent they had anticipated the different types of question (examples of each type was given) and the drawing (on 7-point Likert scales ranging from [1] not at all anticipated to [7] very much anticipated). The participants were then debriefed, thanked and received £10.[1]

Liars

At arrival in the Psychology Department laboratory, the second experimenter (Jackie) told each pair of liars (20 pairs, 40 liars in total) that two £5 notes were hidden in a purse in an empty room. Each pair was instructed to go together to the room, take the money out of the purse, share it and return. When they returned from taking the money, the pairs in the *immediate condition* ($N = 20$ participants) were told that they were suspected of having taken money out of a purse, that they would be interviewed individually in 10 min about this and that they had 10 min to fabricate an alibi about their whereabouts during the last 45 min. This alibi is that someone called Sharon took them as a pair to Gunwharf for an experiment, that the experiment was running late, and that they were therefore taken to a restaurant to have lunch together, paid for by the department, and that Sharon returned after 45 min. They were then told that their task in the interview would be to convince the interviewer that they actually were in the restaurant as a pair. The interviewer would not know if the alibi is true but

[1] To ensure that all participants (liars and truth tellers) were paid the same amount (£10), the experimenter told each participant that the interviewer had been convinced by their story.

would make a judgement at the end of the interview. If the interviewer believes them, they would be paid £10, and could keep the money they took out of the wallet, but if she does not believe them, they would not receive the additional £10, and may be asked to write a statement about their whereabouts instead. The pairs were then left alone together for 10 min. After 10 min the pair of suspects were taken to two different cubicles to fill out the pre-interview questionnaire individually (see above). After completing the questionnaire each was taken separately into the interview room. After the interview the participants completed the post-interview questionnaire individually (see above). The participants were then debriefed, thanked and given £10 apiece.

In the *delay condition*, when the pairs of participants ($N = 20$ pairs) returned from taking the money, they were told that the experiment was running late and that they had to come back at the same time in 1 week (all pairs did). They were also told that if anyone asks them where they had been when they took the money they should say they went to a restaurant for 45 min where they had lunch. When they arrived back after 1 week they were told that they were suspected of having taken money out of a purse a week ago. They then received the same instructions as the pairs of liars in the immediate condition.

The Interview

The female interviewer (a graduate student of another university who was unknown to the participants and blind to the participant's experimental conditions and hypotheses) started the interview by saying: "£10 has gone missing from a wallet in the room next door and I have to find out whether or not it was you who took it. I understood that you claim to have been to a restaurant with a friend for some lunch. I will ask you some questions about this lunch." She continued by asking six opening questions, including: "Can you tell me in as much detail as possible what you did while you were in the restaurant?", "Tell me in as much detail as possible about the layout of the restaurant?" and "Which topics did you discuss during lunch?" After the opening questions, the interviewer then asked ten spatial questions, including "In relation to the front door, where did you and your friend sit?", "In relation to the front door and where you sat, where were the closest diners?" and "In relation to the front door, where at the table did the waiter stand when serving your food?" Finally, the interviewer asked seven temporal questions, including: "Who finished their food first, you or your friend?", "How long did it take between the staff taking your order and receiving your food?" and "In which order did you discuss the different topics you mentioned earlier?"

Coding

The interviews were audiotaped and transcribed. Coding took place on the basis of the transcripts. The first rater (blind to the experimental conditions and hypotheses) coded the amount of detail provided by each participant in the opening, spatial and temporal questions and in the drawings on 7-point Likert scales ranging from (1) not at all detailed to (7) very detailed. The second rater (blind to the experimental conditions and hypotheses) coded independently the amount of detail provided in the opening, spatial and temporal questions of a random sample of 20 participants, using the same 7-point Likert scales as the first rater. The interrater reliability between the two raters was satisfactory for all three types of question: $r = .61$ (opening); $r = .82$ (spatial); and $r = .68$ (temporal).

The first rater also coded the correspondence in answers between the pairs of participants in answering the opening, spatial and temporal questions and in the drawings using 7-point Likert scales ranging from (1) low correspondence to (7) high correspondence. The second rater coded independently the correspondence in answers regarding the opening, spatial and temporal questions between the pairs of a random sample of ten pairs. The interrater reliability between the two raters was satisfactory for the three types of question: $r = .70$ (opening); $r = .58$ (spatial); and $r = .76$ (temporal).

A third rater (blind to the experimental conditions and hypotheses) coded independently from the first rater the amount of detail in all 80 drawings and the level of correspondence in the drawings between the pairs of participants. The interrater reliability between the two raters was satisfactory for both detail ($r = .74$) and correspondence ($r = .82$). The scores for detail and correspondence in drawings of both raters were averaged and these averaged scores were used in the analyses.[2]

RESULTS

Motivation and Manipulation Checks

The vast majority of participants (78%) indicated that they were motivated to perform well during the interview (score of 5 or higher on the 7-point Likert scale). A 2 (Veracity) × 2 (Delay) ANOVA revealed that the experimental manipulations had no effect on the motivation of the

[2] Since we had never coded drawings before we thought it was preferential to obtain reliability codings for all drawings rather than just a selection. Please note that we did not measure the level of correspondence between the drawing and the restaurant that has been drawn. This would not have been possible for liars because we do not know whether they drew an existing restaurant and, if they did so, which restaurant this was.

participants, all F's < 1.83, all p's $> .19$ (grand mean, $M = 5.36$, $SD = 1.41$).

Two 2 (Veracity) × 2 (Delay) ANOVAs were conducted with the estimated likelihood of receiving £10 and having to write a statement as the dependent variables. These analyses revealed only main effects for Veracity regarding both the £10 monetary incentive, $F(1, 78) = 40.17$, $p < .01$, $eta^2 = .35$, $d = 1.44$; and writing a statement: $F(1, 78) = 38.49$, $p < .01$, $eta^2 = .34$, $d = 1.41$). Truth tellers thought it more likely that they would receive the £10 incentive ($M = 5.08$, $SD = 1.1$) than liars ($M = 3.13$, $SD = 1.6$), whereas liars thought it more likely that they would have to write a statement ($M = 5.08$, $SD = 1.3$) than truth tellers ($M = 3.20$, $SD = 1.4$). In summary, participants reported to have been highly motivated to perform well during the interview, and the promise of an incentive and the threat of a punishment appeared realistic to them.

Preparation

A 2 (Veracity) × 2 (Delay) × 2 (preparation) loglinear analysis was carried out to examine difference in preparation between liars and truth tellers, and between the delay and immediate conditions. The analysis revealed one effect, a significant Preparation × Veracity interaction effect, $Z = 1.83$, $p < .05$. Frequency scores revealed that, as predicted, more liars (65%) than truth tellers (30%) reported that they had prepared an interview strategy, X^2 (1, $N = 80$) $= 9.83$, $p < .01$.

Anticipation of the Questions

A mixed 4 (Question Type) × 2 (Veracity) × 2 (Delay) ANOVA was conducted with Question Type as a within-subjects factor and Veracity and Delay as between-subjects factors. The dependent variable was the extent to which the participants anticipated the questions. The analysis revealed only one significant effect, a Question Type main effect, $F(3, 228) = 60.20$, $p < .01$, $eta^2 = .44$. Simple effect tests showed significant differences between all four types of question. As predicted, the opening questions were the most anticipated questions ($M = 5.34$, $SD = 1.7$), followed by temporal questions ($M = 4.86$, $SD = 1.8$) and spatial questions ($M = 3.71$, $SD = 1.9$). The request to draw the layout was the least anticipated question ($M = 2.35$, $SD = 1.7$).

Detail of the Answers

A mixed 4 (Question Type) × 2 (Veracity) × 2 (Delay) ANOVA was conducted with Question Type as a within-subjects factor and Veracity and Delay as between-subjects factors. The dependent variable was the amount of detail in the transcripts and drawings. The analysis revealed main effects for Question Type, $F(3, 228) = 7.23$, $p < .01$, $eta^2 = .09$, and Veracity, $F(1, 72) = 17.68$, $p < .01$, $eta^2 = .19$, and two significant interaction effects: Question Type × Veracity, $F(3, 228) = 3.06$, $p < .05$, $eta^2 = .04$, and Veracity × Delay, $F(1, 72) = 5.35$, $p < .05$, $eta^2 = .07$. The main effects for Question Type and Veracity will not be discussed because the Question Type × Veracity interaction effect is more informative.

Table 1 shows that for all four Question Types, liars provided significantly less detail than truth tellers. The d scores revealed that this was particularly the case for spatial questions ($d = 1.19$). A discriminant analysis revealed that on the basis of the spatial questions, 58% of truth tellers and 85% of liars could be correctly classified.

The Veracity × Delay interaction indicates that in the immediate condition the truth tellers included significantly more details than liars ($M = 4.89$, $SD = 1.1$ vs. $M = 3.47$, $SD = .6$), $F(1, 38) = 27.34$, $p < .01$, $eta^2 = .42$, $d = 1.68$, whereas the difference in details was not significant in the delay condition ($M = 4.50$, $SD = 1.2$ vs. $M = 4.09$, $SD = 1.0$), $F(1, 38) = 1.46$, ns, $eta^2 = .04$.

Correspondence Between Pairs of Truth Tellers and Pairs of Liars

A mixed 4 (Question Type) × 2 (Veracity) × 2 (Delay) ANOVA was carried out with Question Type as a within-subjects factor and Veracity and Delay as between-subjects

Table 1 The amount of detail in the transcripts and drawings as a function of Question Type and Veracity

	Truth tellers		Liars		$F(1, 78)$	p	eta^2	d	Classifications[a]	
	M	SD	M	SD					Truth (%)	Lie (%)
Opening	5.02	1.4	4.35	1.1	5.25	*	.06	.52	63	53
Spatial	4.78	1.5	3.30	1.0	27.56	**	.26	1.19	58	85
Temporal	4.50	1.6	3.58	1.4	7.61	**	.09	.61	50	83
Drawing	4.49	1.2	3.89	1.2	4.66	*	.06	.48	63	63

[a] Truth and lie accuracy rates based on a discriminant analysis

* $p < .05$; ** $p < .01$

Table 2 The level of correspondence in the transcripts and drawings as a function of Question Type and Veracity

	Truth tellers		Liars		$F(1, 78)$	p	eta^2	d	Classifications[a]	
	M	*SD*	*M*	*SD*					Truth (%)	Lie (%)
Opening	4.27	1.4	4.40	1.6	.16	ns	.00	.09		
Spatial	3.97	1.2	2.80	1.1	19.18	**	.20	.98	60	80
Temporal	4.35	1.3	3.60	1.3	6.49	**	.08	.57	60	55
Drawing	4.90	1.6	3.10	1.7	24.05	**	.24	1.10	80	75

[a] Truth and lie accuracy rates based on a discriminant analysis

* $p < .05$; ** $p < .01$

factors. The dependent variable was the amount of correspondence between the pairs in the transcripts and drawings. The analysis revealed main effects for Question Type, $F(3, 228) = 8.17$, $p < .01$, $eta^2 = .10$ and Veracity, $F(1, 72) = 18.99$, $p < .01$, $eta^2 = .20$, and a Question Type × Veracity interaction effect, $F(3, 228) = 8.64$, $p < .01$, $eta^2 = .10$. The Question Type and Veracity main effects will not be discussed because the Question Type × Veracity interaction effect is more informative.

Table 2 reveals that pairs of liars and pairs of truth tellers did not differ in terms of correspondence in the (anticipated) opening questions but did differ in all other (less anticipated) types of question. For the least anticipated questions, the level of correspondence was higher in pairs of truth tellers than in pairs of liars. The d scores show that this was particularly the case for spatial questions ($d = .98$) and drawings ($d = 1.10$). Discriminant analyses revealed that on the basis of correspondence in the spatial questions, 60% of truth tellers and 80% of liars could be correctly classified, and that on the basis of correspondence in the drawings, 80% of truth tellers and 75% of liars could be correctly classified.

DISCUSSION

Asking unanticipated questions does enhance lie detection when interviewing pairs of suspects. Unanticipated questions result in less correspondence in answers for pairs of liars than for pairs of truth tellers, and these different levels in correspondence can be used to detect deceit. We assumed, and found, that when pairs of suspects—particularly liars—prepare for an interview, they anticipate (some of) the interview questions and then plan to give identical answers to these anticipated questions, thereby outwitting investigators who rely on the consistency heuristic to detect deception (Granhag & Strömwall, 2001a). Suspects cannot, however, prepare for unanticipated questions. Hence, we expected and found that, compared to truth tellers, liars gave relatively inconsistent answers to the unanticipated questions.

Although all types of unanticipated questions (spatial and temporal questions and the drawings) resulted in positive effects, spatial questions and the drawing request distinguished liars from truth tellers particularly well. The findings for drawings are interesting. The request to draw the layout of the restaurant was innovative and we are not aware of any published lie detection study where drawings have been used. The use of drawings has obvious benefits. First, it does not involve speech so that it can be used in interviews with interviewees who are not fluent in the language of the interviewer. Second, a drawing can be assessed immediately and does not require transcribing audiotapes (often necessary in speech analyses) or analysing videotapes (often necessary in behavioural analyses). Third, a drawing can easily be checked for factual accuracy. Fourth, a drawing can be sketched in a relatively short period of time, which saves an interviewer's time. Also, interviewees can be left alone to draw and different interviewees can be asked to draw simultaneously, which saves further time for the interviewer.

The use of drawings as a tool for lie detection opens a new area of research. For example, do some elements of drawing serve as more diagnostic cues to deceit than others? Several decades of verbal deception research has shown that some verbal cues are more diagnostic cues to deceit than others (see Masip, Sporer, Garrido, & Herrero, 2005, Sporer, 2004, and Vrij, 2005, 2008, for reviews). Similar research could be carried out with drawings. Also, in our study the participants made drawings of a physical space. Are drawings equally useful as a lie detection tool when other things are drawn, such as persons? Moreover, to what extent does providing an oral statement affect drawing and vice versa? Thus, do drawings by interviewees who are asked to provide an oral statement in addition to providing a sketch differ from drawings of interviewees who are simply asked to provide that drawing? Also, does the order in which interviewees are asked to provide an oral statement and a sketch matter? Thus, do drawings that are sketched before providing an oral statement differ from drawings that are sketched after giving an oral statement? And do oral statements given before a request to sketch differ from oral statements given after a sketch is drawn? Examination of such questions is currently under way (Leins & Fisher, 2008).

Another interesting difference between liars and truth tellers emerged over time. Specifically, truth tellers provided more details in the immediate interview than in the 1-week delay interview. By comparison, liars provide

fewer details in the immediate than in the delay interviews. The observed pattern for truth tellers seems straightforward and reflects the common finding that details are forgotten over time, although there are some exceptions (hypermnesia: see, Payne, 1987, for a review). The unusual pattern is for the liars, whose output increased over time. We suspect that this reflects an error in liars' metacognition about forgetting over time (Metcalfe & Shimamura, 1994; Yzerbyt, Lories, & Dardenne, 1998): Our data suggest that liars may have overestimated the amount of information truth tellers would remember after a 1-week delay. If our observed pattern replicates (truth tellers decrease output over time, whereas liars show the reverse), then this may be yet one more diagnostic pattern to discriminate between liars and truth tellers. We suggest caution at this time, however, because Granhag et al. (2003) did not obtain similar results. Nevertheless, we do encourage others to examine this differential loss (or gain) of information over time as a potential discriminator between liars and truth tellers.

Like many deception studies, we used undergraduate students as participants, and a non-professional interviewer (a graduate student). In addition, the money taken and the incentive awarded for a good performance were rather small, making this a low-stakes study. The stakes do matter in deception studies on many occasions, particularly when nonverbal cues to deception are examined, as nonverbal cues to deception vary with stakes (Vrij, 2008). However, we cannot see how the stakes could have influenced the level of correspondence between pairs of liars and truth tellers as a function of interview questions (the topic of this study). Despite this, replicating the study in a high-stakes setting may be desirable. Criminal investigators often consider laboratory studies to be only remotely related to real-life settings and therefore wonder what such studies "prove" (Mann et al., 2008). A replication of our findings in a truly high-stakes setting may therefore convince criminal investigators more of the value of our findings. Finally, interviewers already may have experienced the value of asking unanticipated questions, or may be ready to believe that such questions could work because the idea probably makes sense intuitively. The present study, established under controlled conditions, supports interviewers' beliefs and offers a theoretical explanation to explain interviewers' intuitions.

Opening questions were unsuccessful in discriminating between pairs of liars and truth tellers. Such questions are the core of the information gathering approach to interviewing (Powell et al., 2005, Vrij, Mann, & Fisher, 2006). Multiple studies have shown that information-gathering in its basic form does not discriminate truth tellers from liars, but that an "information-gathering plus" approach reveals positive findings. The "plus" varies from asking participants to recall their stories in reverse order (Vrij et al., 2007a), to asking interviewees to maintain eye contact during the interview (Vrij, Mann, Leal, & Fisher, 2007), to using evidence strategically (Hartwig et al., 2005, 2006), and, as we showed here, to asking unanticipated questions. We hope that the promising findings of such studies encourage researchers to conduct more "information-gathering plus" lie detection research.

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