

Training Laypersons to Detect Deception in Oral Narratives and Exchanges

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Abstract

Three experiments were conducted to identify a limited set of indicators of truthfulness and deception in oral narratives and exchanges, as well as to train laypersons to use the indicators. In Experiment 1, participants attempted to judge whether an actor in a video was being truthful or deceptive during a consensual conversation with a law enforcement officer. Truth and deception were defined by a limited set of indicators compiled from the research and literature review by McCormack et al. (1). The results showed a strong bias toward judgments of deception. In Experiment 2, research volunteers were instructed to give arguments that were either consistent with their true beliefs or opposite their true beliefs. Differences in verbal, vocal, and behavioral components were quantified and were used as training materials in Experiment 3. With limited training on the indicators, laypersons in Experiment 3 did not improve their rate of accuracy. Practical implications for detecting deception and implementing training protocols are discussed.

Training Laypersons to Detect Deception in Oral Narratives and Exchanges

Research has shown that distinguishing truthful from deceptive oral narratives and exchanges is not an easy task (2, 3, 4, 5). One reason why both laypersons and professionals have difficulty distinguishing truthful from deceptive narratives is that some of the more reliable indicators of deception are not consistent with “common sense.” For example, one might logically believe that a person who is in a position of being deceptive would choose to offer an elaborate account so as to convince the listener that s/he is being truthful. S/he might try to “sell the story” to the listener. While some will make this choice, research indicates that most persons who find themselves in a position of needing to be deceptive choose to offer limited accounts that are lacking in details (6, 7). In one research study, participants who were randomly assigned to fabricate an autobiographical event stated that they believed offering too many details would appear deceptive (6).

Truthful persons are able to tell their stories with the benefit of a memory record that contains sensory details. To the extent that these details are absent from a narrative account, suspicion might be warranted as to the truthfulness of the story (3, 8, 9). Deceptive persons must tell their stories based on their imaginations and rationalizations because they have no actual perceptual experiences for their stories. Nevertheless, the hypothesis that content-based criteria can be used to reliably discriminate truthful from confabulated stories has received limited support in the literature (2, 10). More generally, most researchers have acknowledged that any proposed set of indicators should be viewed as imperfect clues (“red flags” or “hot spots”) that only sometimes discriminate deceptive statements from truthful statements in a forensic context (1, 5, 11).

McCormack et al. (1) set out to identify a limited set of the more reliable verbal and vocal indicators of truthfulness and deception. They found that confabulated stories about autobiographical events, as compared with true ones, were lacking in contextual details (time and place) and interactions with others, and contained spontaneous rationalizations for the limited details that were given. Furthermore, the bare-bones confabulated stories were presented with relatively low speech fluidity (variable speech rate, sentence fragments, stops and starts). Given that these findings were consistent with past results from studies that employed different methodologies (6, 7, 10), McCormack et al. concluded that these indicators of deception are likely to be the more reliable ones.

As a practical application, McCormack et al. (1) reasoned that first responders might be able to rely on this limited set of indicators, in addition to behavioral cues, to assess the likelihood of deception in conversations with persons who have already raised suspicion. Such evaluations would likely be more accurate if a greater number of indicators were used to make the evaluations, but for most day-to-day operations in sensitive areas such as mass-transportation, first responders would likely need to rely on a limited set of the more promising indicators. Otherwise, the evaluation task could overwhelm the first responders' cognitive resources in real time. A more comprehensive analysis might be impractical in many real-world contexts.

The present set of three experiments was designed to refine a limited, manageable set of verbal, vocal, and behavioral indicators to discriminate truthful from deceptive oral narratives and exchanges, and then to evaluate the ability of laypersons to accurately judge the veracity of oral statements both before and after training.

Experiment 1

The purpose for Experiment 1 was to evaluate the ability of untrained laypersons to judge accurately the veracity of exchanges between two actors where truth and deception were defined in terms of the limited set of verbal, vocal, and behavioral indicators compiled from the research and literature review by McCormack et al. (1). For purposes of this study, the exchanges between the actors were staged to depict the entire set of indicators as either truthful or deceptive. Each participant was asked to make a judgment for only one of these polar-opposite examples. Thus, the design provided for a sensitive test of the untrained participants' abilities because most real-world exchanges would likely not occur in these extreme forms.

Method

Participants. The participants in the study were 102 undergraduate students who were enrolled in psychology courses at the University of California, Los Angeles. Each student participated in the study for extra credit as an incentive.

Materials. Two scenarios were created using law-enforcement professionals as actors. The scenarios were (1) a conversation between citizen and officer following a traffic stop and (2) a consensual conversation on a train platform between a commuter and a transit authority security officer. Two versions of each scenario were constructed based on the indicators of truthfulness and deception compiled by McCormack et al. (1). One version placed all of the indicators in favor of truthfulness and the other version placed all of the indicators in favor of deception. Thus, the alternative versions were polar-opposite examples.

The exchanges in the "truthful" videos included a high amount of detail with elaborations, interactions with others, visual images, and references to time and place.

The vocal characteristics were fluid with stable pitch and rate. The citizen maintained eye contact with the officer and gestured frequently away from his own body. In contrast, the exchanges in the “deceptive” videos included brief answers to all questions without volunteering details. The citizen repeated questions from the officer before answering them and offered rationalizations for the brief statements given. The vocal characteristics were irregular with hesitations, mid-sentence changes, and varied speech pitch and rate. The citizen looked away, pressed his lips, and gestured infrequently and only toward his own body. See McCormack et al. (1) for additional discussion of these indicators.

Procedure. Each participant viewed only one version of one scenario. Thus, the data matrix formed a 2x2 between-subjects design. The participants were told that their task was to view a brief exchange between a citizen and a police officer and to judge whether or not the citizen was being truthful or deceptive with the police officer. They were told that half of the videos showed a citizen who was being truthful and half showed a citizen who was being deception. Therefore the odds of truthfulness versus deception were 50/50 either way. Following the showing of the video clip, the participants were asked to make a binary decision between truthful and deceptive, and then to give a confidence rating on a 4-point scale. The participants also were asked to describe briefly the reason(s) for their judgment of truthfulness or deception.

Results and Discussion

The participants showed a significant bias toward labeling the exchanges as deceptive, $F(1, 98) = 4.91, p < .03$. Ninety-four percent of the “deceptive” exchanges were judged deceptive and seventy-nine percent of the “truthful” exchanges were judged deceptive.

Thus, the judgments of truthfulness were more likely to be accurate (78%) than the judgments of deception (54%), $F(1, 98) = 5.03$, $p < .03$. Confidence in the judgments significantly discriminated correct deceptive judgments from incorrect deceptive judgments (62% certain when correct versus 41% certain when incorrect, $p < .01$) but confidence was unrelated to accuracy for truthful judgments (51% certain regardless of accuracy). In sum, the participants believed that the exchanges were deceptive most of the time but judged the exchanges as truthful when they were less certain about deception. Clearly, without training to the contrary, the laypersons who participated in this study were basing their judgments on whether they perceived evidence of deception only, not truthfulness and deception. This was the case even though the examples were extreme cases and the participants were told that the chances of viewing a deceptive versus truthful exchange were 50/50. The high incidence of false positives has been found in past research (11) and appears to be exacerbated by the viewing popular television shows about detecting lies (12).

When the participants correctly labeled a deceptive exchange, they reported that they relied mainly on the citizen's hesitations to answering questions (70% of the sample cited this vocal indicator as the primary or secondary reason). When the participants correctly labeled a truthful exchange, they reported that they relied mainly on the citizen's making eye contact (54% of the sample cited this behavioral indicator as the primary or secondary reason). Reliance on eye contact is consistent with one strategy for detecting deception (13) but some researchers (14, 15, 16) have argued that reliance on non-verbal cues alone is limiting. A variety of other indicators was cited by the participants in the present study as rationales for their judgments but at a significantly lower rate across the

sample (difference scores with all p s < .01). Both hesitations and eye contact are elements of the set of indicators compiled by McCormack et al. (1) as the most reliable, but it appears that laypersons without training do not consider a more comprehensive array of factors. The characterizations in the alternate videos used in Experiment 1 provided for a much wider range of indicators. The purpose for the present Experiment 3 was to evaluate the usefulness of training laypersons on a wider set of indicators derived from a new methodology used in Experiment 2.

Experiment 2

The purpose for Experiment 2 was to quantify the contents of truthful versus deceptive narratives where truth and deception were established by having research volunteers argue a position on a topic of the day. Unlike in Experiment 1 where the persons in the stimulus videos were actors portraying truthful and deceptive commuters, the volunteers in this experiment were asked in reality to be truthful or deceptive. The arguments given were to be either consistent with their true personal beliefs or opposite their true personal beliefs. This element of realism could affect which factors are found to best discriminate truthful from deceptive narratives (4, 17). In addition, the volunteers received challenge questions from a research assistant about their arguments at the conclusion of their narratives. Their verbal, vocal, and behavioral responses to these questions also were quantified toward better discriminating the truthful and deceptive exchanges (18).

Method

Participants. The participants in the study were 10 undergraduate students who were enrolled at the University of California, Los Angeles. Each student participated in the study in exchange for \$20 as an incentive with the possibility of earning an additional

\$30 based on performance. Each volunteer signed a form agreeing to allow his/her videos to be used in future research studies.

Materials. Four topics of the day were placed on a checklist to be used in the study. The topics were: smoking in public places, the death penalty, physician-assisted suicide, and the legalization of marijuana.

Procedure. Each volunteer was shown the list of topics and was asked to indicate whether he/she was in favor of or against each topic, and also to rate the strength of his/her feelings about each topic on a 5-point Likert scale. For each volunteer, a research assistant selected the two topics with the highest ratings and randomly assigned one topic to be argued in a manner consistent with the volunteer's true opinions and the other to be argued in a manner opposite the volunteer's true opinions. The order in which the truthful and deceptive arguments were to be given was counterbalanced across volunteers.

The volunteers were told that they would be making the arguments about a topic while sitting across a table from a research assistant who would ask them a few questions following the narrative arguments. They were told that later on, two other research assistants would view the video of their participation and these assistant also would judge whether they were being truthful about their opinions. They were told that if they were successful in convincing two of the three research assistants, then they would earn an additional \$30.

Immediately before giving the narrative arguments about their first topic, the volunteer was asked a few simple questions to be answered truthfully. This was to provide a baseline sample depicting the person when being truthful. The baseline

questions were: “Do you intend to answer these questions truthfully? Are you now sitting down? Before today, have you ever been deceptive to a friend? In what city do you currently live? In total, how many years have you worked full or part time? Have you honestly answered these questions?” A camcorder on a tripod was used to video each volunteer’s participation throughout the study.

Then, the volunteer was given five minutes to prepare his/her arguments mentally prior to beginning the narrative about their first topic. Immediately following the narrative, the research assistant who was sitting across the table from the volunteer asked the following challenge questions in order. “Are you finished? Is there anything you would like to add? To be clear, you are saying that (the specific given argument)? So you would have no problem with (the specific given argument)? Are you being truthful with me right now?” Following these questions, the research assistant stated, “I think you have been lying to me this entire time.” Following the volunteer’s response to this final question, the procedure was repeated for the second topic.

Results and Discussion

The videos were reviewed independently by three of the authors. First, the truthful and deceptive arguments from each volunteer were compared for differences. Then, patterns were identified across volunteers. The three authors then met at a joint session to compare notes on each volunteer and on patterns across the volunteers. These analyses of the video protocols produced the following summary and guidelines for use as training materials in Experiment 3:

1. *Body language can sometimes be a sign of deception, such as avoiding eye contact when questioned, grooming self, biting lip, rubbing hands, or giving a “lying smile.”*

2. *Truthful people generally appear more engaged whereas deceptive people appear to lack conviction.*
3. *Truthful people generally are more elaborate in their arguments, but deceptive people sometimes take just as long because they stammer through the story and/or they stop and re-start as if they realize their argument was too short to be believable, and/or they repeat the same arguments.*
4. *Truthful people often spontaneously bring up and discuss personal experiences to make their arguments.*
5. *In a few cases, deceptive people try to “sell” their argument and appear to be trying too hard in an exaggerated manner.*
6. *When asked if they want to add anything, deceptive people tend to say NO quickly or they just repeat the same arguments, whereas truthful people either go ahead and add something new or they at least think about it before saying NO.*
7. *When told by the listener that he thinks they are lying, deceptive people often appear unhappy and uncomfortable.*

This set of guidelines is consistent with the set of indicators compiled by McCormack et al. (1), but it also reflects the significant role of the overall credibility of the subject who is speaking (5). It is apparent that the perceived credibility of the subject must be considered in any attempt to discriminate truthful and deceptive exchanges based on a set of verbal, vocal, and behavioral indicators. That is, some indicators (abundant elaborations) will indicate truthfulness in most cases, but can indicate deception if accompanied by other factors (trying too hard in an exaggerated manner). It is interesting that one volunteer who appeared as trying too hard offering abundant elaborations in an exaggerated manner was a Theater Arts major.

A separate analysis revealed an interesting and significant interaction involving the order in which the volunteers were asked to produce their truthful and deceptive arguments. For the first argument given (where the volunteers did not yet know about the challenging nature of the follow-up questions), the narratives were significantly longer for the deceptive arguments than for the truthful arguments (92 sec versus 67 sec, $p < .05$). When the volunteers were being deceptive in this experiment, they may have

attempted to “sell the story” to the listener, but primarily through repetition of arguments and/or time-consuming non-fluid orations. The deceptive volunteers also appeared to be trying too hard in an exaggerated manner so as to appear convincing. In contrast, for the second argument given (where the volunteers now knew about the challenging nature of the follow-up questions), the narratives were significantly shorter for the deceptive arguments than for the truthful arguments (72 sec versus 94 sec, $p < .05$). Once the volunteers knew about the challenging nature of the questions to come, they offered relatively brief narratives for the deceptive arguments but they offered more elaborate narratives for the truthful arguments. In sum, the relative length of the deceptive narratives in this study appears to have been related to the expectations of the subjects for being challenged in what they would say. This finding provides support for the strategy used by some law-enforcement personnel where the subject first is allowed to proceed uninterrupted with his/her story in an “information-gathering” environment. At the conclusion of the story, the subject is challenged by the interviewer about the statements provided in the narrative (18). The present results suggest that a reduction in the level of embellishment following the challenge, instead of an increase in elaboration, would appear to be a sign of deception. At that point, truthful subjects make more statements not fewer.

Experiment 3

The participants who made judgments of truthfulness and deception in Experiment 1 were not trained on the more reliable indicators of deception. Without training, those participants showed a significant bias toward judging exchanges as deceptive, even when the indicators should have signaled truthfulness. The purpose for Experiment 3 was to

evaluate the ability of laypersons to discriminate the truthful and deceptive exchanges from Experiment 2 both before and after receiving training on the guidelines derived in Experiment 2. Previous attempts to train laypersons to improve their ability to discriminate truthful and deceptive narratives have met with mixed success (2, 3, 5, 11).

Method

Participants. The participants in this study included 78 undergraduate students who were enrolled in psychology courses at the University of California, Los Angeles. Each of these students participated in the study for extra credit as an incentive. Thirty-eight non-students also were recruited from outside the university as additional volunteers. None of the 116 participants were involved with law enforcement and each volunteered without any incentive.

Materials. Four video strings were constructed from the video clips recorded in Experiment 2. Each string consisted of 10 video clips depicting each of the 10 volunteers once. The first 5 clips were presented before training and the second 5 clips after training. Each set of 5 clips contained 5, 3, 2, or 0 instances of deceptive narratives and each string contained a minimum of 2 truthful and 2 deceptive arguments. In this manner, the sets were counterbalanced across the four strings. Each participant was shown one of the four strings.

Immediately before each narrative argument, the person making the arguments was shown answering the baseline questions. This was to provide a baseline sample depicting the person when being truthful.

Procedure. The procedure constituted a before-after training design. The following instructions were presented to the participants before the first set of 5 video clips was shown:

You will be shown a few 2-3 minute video clips of students who have been asked to argue in favor of or against a topic of the day. In approximately one half of the cases, the student will be arguing a position that is consistent with his/her own true personal beliefs about the topic. In the other half of the cases, the student will be arguing a position that is not consistent with his/her own true personal beliefs about the topic. In all cases, the student will be attempting to convince a person sitting opposite them that he/she is arguing a position that is consistent with their own true personal beliefs.

Once the student has made their arguments on the topic, the student will be asked a short set of questions about his/her arguments by a person sitting opposite them. In the video clips, you will only see the student making the arguments and not the person who he/she is trying to convince. The student was told that if he/she could convince the person sitting opposite them that these were their true beliefs, then he/she would win \$50.

You will be shown a few students one at a time. After each one, you will be asked to decide whether the student was in fact telling the truth about his/her own true personal beliefs on the topic or whether he/she was being deceptive (lying) about his/her true personal beliefs on the topic.

Before we begin, I am going to show you an example to familiarize you with the nature of the videos. First you will see the student being truthful while answering some simple questions, and then you will see the student being either truthful or deceptive about his/her own personal beliefs about a topic.

After the first set of 5 video clips was shown, a copy of the following guidelines was given to each participant. They were told to study these guidelines over the next two days prior to returning for the second portion of the study.

The following is a set of considerations that you should use to decide whether a person is being truthful or deceptive when arguing a position on a topic.

1. *Body language can sometimes be a sign of deception, such as avoiding eye contact when questioned, grooming self, biting lip, rubbing hands, or giving a "lying smile."*
2. *Truthful people generally appear more engaged whereas deceptive people appear to lack conviction.*
3. *Truthful people generally are more elaborate in their arguments, but deceptive people sometimes take just as long because they stammer through the story and/or*

- they stop and re-start as if they realize their argument was too short to be believable, and/or they repeat the same arguments.*
4. *Truthful people often spontaneously bring up and discuss personal experiences to make their arguments.*
 5. *In a few cases, deceptive people try to “sell” their argument and appear to be trying too hard in an exaggerated manner.*
 6. *When asked if they want to add anything, deceptive people tend to say NO quickly or they just repeat the same arguments, whereas truthful people either go ahead and add something new or they at least think about it before saying NO.*
 7. *When told by the listener that he thinks they are lying, deceptive people often appear unhappy and uncomfortable.*

Try to base your decision on the sum total of these considerations. Just because you find one indicator of deception does not necessarily mean the person is being deceptive about his/her true opinions. Likewise, just because you find one indicator of truthfulness does not necessarily mean the person is being truthful about his/her true opinions.

Each participant returned two days later for the second part of the study and was asked to indicate the number of times he/she reviewed the guidelines prior to arrival. This session began with a review of the guidelines by a research assistant followed by the presentation of the second set of 5 video clips in the video string. The procedure for the presentation of the second set of 5 video clips was the same as in the first session.

Results and Discussion

The data matrix formed a 2x2 design with the factors being truthful-deceptive narratives and pre-post training. The dependent variables were accuracy rate (out of 5 exemplars) and mean judgment confidence rating.

In contrast with the results from Experiment 1, there was no trend in the accuracy data toward judging most of the narratives and exchanges as being deceptive. Before training, the accuracy rate was better than chance for truthful arguments (.63) and was at chance for deceptive arguments (.49). As in Experiment 1, these participants were told that the base rate for truthful versus deceptive exemplars was 50/50. Therefore, the different outcome for Experiment 3 likely was due to the repeated-measures design. These

participants judged five exemplars instead of a single exemplar, and therefore they could attempt to match the base rate across the exemplars. Nevertheless, the judgments of truthfulness still appeared to result from a perceived absence of indicators of deception rather than from a balanced comparison of indicators of truthfulness versus deception. This conclusion is supported in the pre-training confidence data where the participants were significantly more confident in their judgments of deception than in their judgments of truthfulness (3.06 versus 2.96, $p < .05$). When the participants found evidence of deception, they were more certain in their judgments. When the participants were more uncertain, they were more likely to judge the subject's arguments as being truthful.

After training, the rate of judgment accuracy remained above chance for truthful arguments (.68) but decreased significantly and below chance for deceptive arguments (.36, $p < .05$). The reason for this differential decrease in accuracy for judging deceptive arguments was not expected. One plausible explanation is that the summary cautionary instruction (which was emphasized) to base their decisions on a totality of the factors rather than just one factor led the participants to be more hesitant to conclude deception without detecting multiple indicators of deception. With the limited training, they may have been ill prepared to monitor the videos for multiple indicators of deception. Thus, deceptive arguments that otherwise would have been judged as deceptive were now judged as truthful.

Before training, the participants were more confident in their accurate judgments than in their inaccurate judgments (3.12 versus 2.31, $p < .05$). After training, the participants were just as confident in their accurate judgments as they were before training (3.15 versus 3.12), but they were significantly more confident in their inaccurate judgments

than they were before training (3.10 versus 2.31, $p < .05$). Thus, after the training there was no difference between the participants' confidence in accurate versus inaccurate judgments. The overall pattern in the confidence data held for both the truthful and the deceptive arguments.

In summary, the training guidelines given to the participants in Experiment 3 led to (1) increased errors in judging deceptive arguments as truthful and (2) increased confidence in incorrect judgments. Participants appeared to believe that their accuracy had been improved for the more uncertain exemplars (errors), perhaps because they believed that their accuracy should have been improved. In reality however, the limited exposure to the guidelines produced less accurate judgments for the deceptive arguments than when the participants had relied on their "untrained gut reactions." Participants in some past studies also have given inflated confidence ratings after receiving training to detect deception (see 11, for a review).

Prior to beginning the second session, each participant followed along while the experimenter reviewed the training guidelines. When asked anonymously how many times they studied the guidelines prior to arriving for the second session, the modal response was one time only. Participants who indicated that they had read the guidelines more times tended to be more accurate in their judgments of the deceptive arguments following the training, $r(114) = 0.37$, $p < .05$. Thus, the participants who studied the guidelines more times tended to not show the same decrease in accuracy for the deceptive arguments that was observed overall in the sample. It follows then that the contents of the training guidelines (the indicators) did not lead to the decrease in accuracy for the deceptive arguments because greater self-reported exposure to the guidelines was not

correlated with more errors. Instead, the results are consistent with the hypothesis that insufficient exposure to the training guidelines led the participants to perform less accurately on the deceptive arguments.

General Discussion

The limited set of indicators compiled by McCormack et al. (1) and the guidelines from the present Experiment 2 provide a basis for judging truthfulness and deception in oral narratives and exchanges. It is important to view these indicators as “red flags” or “hot spots” that only sometimes discriminate truthful from deceptive statements. For example, gaze aversion alone cannot be taken as a sign of deception because it also can be a sign of increased concentration. Judgments of truthfulness and deception must be based on a collective pattern of indicators, but the results of Experiment 3 demonstrate that more than limited training is required to master the ability to consider multiple indicators. From the results of the present studies as well as the existing literature, the more reliable verbal, vocal and behavioral indicators appear to be the following:

Verbal Indicators

Truthful subjects tend to include a high amount of detail with elaborations, interactions with others, visual images, and references to time and place. Truthful subjects also often spontaneously bring up and discuss personal experiences in their narratives. Truthful people generally appear more engaged whereas deceptive people appear to lack conviction. In contrast, deceptive subjects tend to include brief answers to questions without volunteering many details. They also tend to repeat questions from the interviewer before answering them and offer rationalizations as if to justify their statements. While truthful subjects generally are more elaborate in their arguments,

deceptive people sometimes take just as long because they stammer through the story and/or they stop and re-start as if they realize their statement was too short to be believable, and/or they repeat the same arguments. In a few cases, deceptive people try to “sell” their statements and appear to be trying too hard in an exaggerated manner. Finally, when asked if they want to add anything, deceptive subjects tend to say NO quickly or they just repeat the same statements, whereas truthful subjects either go ahead and add something new or they at least think about it before saying NO.

Vocal Indicators

The vocal characteristics of truthful subjects tend to be fluid with stable pitch and rate. The vocal characteristics of deceptive subjects tend to be irregular with hesitations, mid-sentence changes, and varied speech pitch and rate.

Behavioral Indicators

Truthful subjects tend to maintain eye contact with the interviewer and make illustrative gestures away from their own bodies. Body language can sometimes be a sign of deception, such as avoiding eye contact, grooming self, biting lip, rubbing hands, or giving a “lying smile.” Deceptive subjects tend to look away, press their lips, and gesture infrequently or toward their own bodies only. When told by the interviewer that he thinks they are lying, deceptive people often appear unhappy and uncomfortable.

Training to Judge Truthfulness and Deception

The results of Experiment 1 illustrate that laypersons without training do not discriminate prototypical truthful and deceptive exchanges very well, but instead exhibit a significant bias toward labeling an exchange as deceptive even when the exchange contains the more reliable signs of truth. The results from Experiment 3 demonstrate that

laypersons with limited training do not discriminate actual truthful and deceptive narratives and exchanges very well either, and they also appear to focus on indicators of deception rather than truthfulness. These findings are consistent with data from some past studies with laypersons (2, 3). The present results illustrate further that insufficient training can lead to more errors and inflated confidence in the errors compared with no training at all.

Research on training law enforcement officers to detect deception has shown that plenty of practice with video clips and feedback is necessary to improve the accuracy of their judgments reliably (19, 20). The same is likely to be true with laypersons (21, 22). Indeed, participants in Experiment 3 who indicated that they read the guidelines more times were more accurate with some of their judgments post training (judging deceptive arguments). Otherwise, more limited exposure to the training guidelines produced results that were less accurate than before the training. Future research will explore more substantial protocols for training on the more reliable indicators of truthfulness and deception. In particular, the present results indicate that the training should emphasize skills for relying on multiple indicators and for weighing indicators of truthfulness as well as deception.

Perhaps the most reliable way to judge truthfulness and deception is to utilize the statement-evidence consistency cue. Comparing the subject's statements with the case evidence as a litmus test has been found in one study to increase deception detection accuracy by nearly 30 percent, with an overall accuracy rate of 85 percent (23)! Unfortunately, quite often there is no such evidence at this point in the investigation to use in the interview. Even if such evidence does exist, we recommend using a cognitive-

interview, information-gathering type format (24, 25) at least for the initial phase of the investigative interview, as opposed to a confrontational-type format. Use of the cognitive interview should maximize the amount of information obtained from the subject that then can be compared with the case evidence. Results from Experiment 2 lend support for the practice of challenging the subject later on in the interview to monitor changes in the subject's responding. With the challenges, truthful subjects are expected to increase their statement elaborations whereas deceptive subjects are expected to decrease their statement elaborations.

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