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TRACIE K. LINDEMAN
CLERK OF SUPREME COURT
BY
CHIEF DEPUTY CLERK

ADKT 0424

September 1, 2011

VIA HAND DELIVERY

Tracie K. Lindeman
Clerk of the Supreme Court
201 South Carson Street
Carson City, Nevada 89701

Re: Comments Regarding the Proposed Amendments to Part IX of the Supreme Court Rules

Dear Ms. Lindeman:

On behalf of the undersigned trial attorneys, we hereby submit the following comments regarding the proposed amendments to Part IX of the Supreme Court Rules. Specifically, our comments are directed at the proposed "Rules Governing Appearance by Simultaneous Audiovisual Transmission Equipment."

Although we recognize the policy arguments in favor of allowing parties and witnesses to appear by audiovisual transmission at trials, hearings, and settlement conferences, we believe there are competing policy arguments that must be considered as well as practical problems created by the proposed rule. Our comments are outlined below:

1. Allowing a witness to testify through audiovisual transmission creates a barrier between the witness and the trier of fact. Any attorney who has taken a deposition through audiovisual transmission knows that much is lost by not being in the same room as the witness. It is very difficult to remotely assess the full scope of a witness' testimony and credibility. Is the witness: (i) shifting uncomfortably in the chair; (ii) averting his/her eyes or looking evasive; or (iii) appearing nervous? Indeed, it is not just about *what's* being said, but *how* it's being said. This aspect of a witness' testimony is very difficult to judge through audiovisual transmission, and a witness' testimony can only be properly assessed by being in the same room as the witness. The same is true, of course, for the trier of fact in a trial or hearing. All of the aforementioned non-verbal communication will be lost or, at the very least, will have minimal value. It is often said that non-verbal communication between people is just as important and relevant as verbal communication. The barrier between the witness and the trier of fact cannot be overcome through the use of technology.

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2. If some witnesses are allowed to testify live in court and other witnesses are allowed to testify through audiovisual transmission, this may create a biasing effect when the trier of fact weighs a witness' testimony. Studies have shown that the method of presentation of a witness' testimony is "a crucial part of the message."[1] If testimony is received by a trier of fact through two different methods (i.e. live testimony versus audiovisual transmission testimony), it allows the trier of fact to be biased for testimony delivered through one method and biased against testimony delivered through the other method.[2] This necessarily creates an uneven playing field between the parties, and differences in the presentation of testimony could be a ripe topic for possible appeals by parties.

3. As currently drafted, the rule does not address the practical problem of providing exhibits to a witness testifying by audiovisual transmission. There is no effective way to provide exhibits to a witness to review during his/her testimony unless the exhibits are provided to the witness prior to his/her testimony. This requires a party to prematurely disclose what exhibits the party's attorney wishes to ask the witness about, and this is prejudicial to the party. Moreover, depending on the witness' testimony on direct examination, the cross-examining attorney may not have provided every possible exhibit to the remotely testifying witness because the attorney could not anticipate every aspect of the witness' testimony. Thus, exhibits that were going to be used for cross-examination or impeachment purposes may not have been previously provided to the witness,

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[1] Landstrom, S., Granhag, P. A. & Hartwig, M. (2005). Witnesses Appearing Live Versus On Video: Effects on Observers' Perception, Veracity Assessments and Memory. Applied Cognitive Psychology, 19, pp. 913-933. In this study, which is attached hereto as **Exhibit "A"**, researchers looked at jurors' reactions to live and videotaped eyewitness testimony. Three weeks after seeing a staged accident, 12 witnesses testified about the event. Jurors were presented with the witnesses' testimony either live or via video and rated the witnesses' statements, appearance, and credibility. Live observers of the witnesses' testimony rated the witnesses' appearance more positively than did video observers, and perceived the witnesses as being more honest. Live observers also incorrectly believed they had a better memory of the witnesses' statements than did video observers. Also, the study concluded "that the presentation mode is a crucial part of the message," and that "[f]uture research faces an important challenge in investigating the many different psychological effects that may result from the use of new courtroom technology."

[2] Boster, F.J., Miller, G.R., & Fontes, N.E. (1978). Videotape in the Courtroom, Part 3 – Effects in Live Trials. This study, which is attached hereto as **Exhibit "B"**, found that interspersing videotape into an otherwise live trial had a biasing effect. Based on jurors drawn from the pool of the 68th District Court in Flint Michigan, and viewing either live or videotaped expert and party witnesses, the study found that the plaintiff witness was viewed as more credible, and his testimony was remembered more completely when he appeared live, while the defense witness was more credible when viewed on video. The researchers concluded that there is a bias in the mode of testimony, but the direction of that bias is unpredictable.

and there is no efficient way to get those exhibits quickly to the witness testifying through audiovisual transmission. Currently, the rule is silent on these issues.

4. The proposed rule currently allows for parties to attend settlement conferences by audiovisual transmission. Not requiring parties to personally attend a settlement conference will reduce the efficacy of those conferences. This would be true at settlement conferences at all levels of the Nevada judiciary, including the Nevada Supreme Court's settlement conference program. As many of us have witnessed at these conferences, settlement conferences oftentimes are only successful if the parties, their attorneys, and the mediator are in the same room together. The Nevada Supreme Court's settlement conference program has been effective for many years in reducing the number of appeals, and it would be unfortunate if that program's success would be lessened by allowing parties to attend settlement conferences through audiovisual transmission. The same would be true of similar settlement efforts which take place every day at the District Court level.

5. As drafted, the proposed rule is difficult to reconcile with Rule 45 subpoena power. For example, if a witness lives in the same town where a trial is taking place and the witness receives a subpoena to testify at trial, can the witness avoid being required to testify live at court by appearing instead by audiovisual transmission? Also, under Rule 45, a party can subpoena a Reno witness to testify in a Las Vegas trial. This rule would lessen that power, and it creates ambiguity with respect to which rule is supreme – the proposed rule or Rule 45.

6. If a witness is testifying by audiovisual transmission, the rule should be amended to ensure: (i) the identity of the witness; (ii) that the witness is not being fed information or reviewing notes/documents off screen; and (iii) that the witness is not being coached or improperly influenced off screen. Along these lines, does a court reporter or other objective observer need to be present in the room with the witness during the witness' testimony? If so, who pays for the court reporter or other objective observer?

7. Finally, the rule as drafted has technical gaps that should be addressed. These include:

   a) With respect to the notice provisions of the proposed rule, Rule 4(4) is currently silent on how a witness, not a party, is supposed to inform the parties of his/her intention to appear by audiovisual transmission. Witnesses are oftentimes third-party witnesses who are unaffiliated with either party, and the rule does not speak to how this type of witness is to provide notice to the court and parties.

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b) The time periods in Rule 4(4) are impractical. Permitting parties or witnesses to provide only three days notice is too short for parties and their attorney's to handle the practical implications of a witness appearing by audiovisual transmission. For example, three days notice does not allow: (i) a party enough time to move the court to require a personal appearance under Rule 4(2)(b); and (ii) a party more than one day to review, gather, and send exhibits to the remotely testifying witness, and this is also true if in response to one party's notice, another party decides by noon on the following day to present his/her witness remotely as well, in which case there would be no time to get that witness exhibits. More time must be provided to avoid these problems and to lessen the possibility of gamesmanship.

c) To create a clean record concerning the notice to appear by audiovisual means, the notice should be in writing and should not be permitted to be an oral notice. Written notice would lessen the possibility of disputes concerning whether notice was provided, and it would also lessen the gamesmanship that could result.

d) Rule 2 states that "courts shall permit parties" to appear by audiovisual transmission, but it is silent with respect to witnesses. Because the rule is directed at both witnesses and parties, the rule should likely refer to both groups, not just parties. Please note that this same issue is also present in Rule 2 of the rules relating to telephonic transmission.

For the above-stated reasons, we believe that it should not be permissible for parties and witnesses to appear at trials, hearings, and settlement conferences through audiovisual transmission.

However, if a rule regarding audiovisual transmission appearances is enacted, we believe that the rule should be restated so that courts favor live testimony and appearances, rather than testimony through audiovisual transmission. Under this approach, courts, upon a motion by a party, may permit a party or witness to appear by audiovisual transmission only if good cause is shown. Therefore, we believe that the court's preferred approach is to require live testimony and appearances, and the exception is to allow for testimony and appearances by audiovisual transmission.

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Pursuant to the Order Scheduling Public Hearing dated July 29, 2011, a representative of the undersigned attorneys does wish to participate in the hearing on the proposed rules on September 8, 2011 at 3:30 p.m.

We appreciate the opportunity to provide comments on the proposed rules, and we appreciate your consideration of those comments.

Sincerely,

Matthew B. Hippler
Brian Anderson
Robert Cassity
Richard L. Elmore
Lars Evensen
Alex J. Flangas
Anthony Hall
Stephan Hollandworth
Tamara Jankovic
Justin Jones
Bryce Kunimoto
Frank LaForge
Dora V. Lane
Jeremy J. Nork
Melissa Orien
Patrick Reilly
J. Robert Smith
of Holland & Hart LLP

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Exhibit A

Exhibit A

APPLIED COGNITIVE PSYCHOLOGY
Appl. Cognit. Psychol. **19**: 913–933 (2005)
Published online 30 June 2005 in Wiley InterScience
(www.interscience.wiley.com) DOI: 10.1002/acp.1131

Witnesses Appearing Live Versus on Video: Effects on Observers' Perception, Veracity Assessments and Memory

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Göteborg University, Sweden

SUMMARY

The study is an experiment examining how different presentation modes (live vs. video) affect observers' perception, veracity assessments and memory of witnesses and their statements. Three weeks after seeing a staged accident, six truth telling and six lying witnesses testified about the event. Mock jurors ($N = 122$) viewed the witnesses' testimony either live or on video and rated their perception of the witnesses' statement and appearance as well as the credibility of the witnesses. Live observers rated the witnesses' appearance in a more positive way and perceived them as being more honest than did video observers. Truth tellers were rated as having to think less hard than liars. Moreover, observers were not better than chance in assessing veracity, regardless of presentation mode. Live observers incorrectly believed they had a better memory of the witnesses' statements than video observers. Observers who had watched truthful statements showed a significantly better memory performance than observers who had watched deceptive statements. Copyright © 2005 John Wiley & Sons, Ltd.

This study attempts to shed light on the question of whether observers perceive and evaluate live and video-based statements differently. This is an important, but so far relatively neglected, aspect of new courtroom technology. Specifically, the study set out to answer the question of whether mock jurors' perception, veracity assessments and memory, differ depending on whether they have seen a witness (either lying or telling the truth) live or on video. Throughout this paper, the term perception refers to the observers' perception of the characteristics of the witness' statement and appearance.

RESEARCH ON DECEPTION DETECTION

Accuracy in detecting deception

The results of 30 years of research on human deception detection ability are far from encouraging. In short, people's ability to distinguish between truthful and deceptive

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statements seems to be limited. Accuracy levels often fall between 45% and 60% (Vrij, 2000). An average hit rate of 57% has been observed in two overviews (Kraut, 1980; Vrij, 2000). Keeping in mind that the level of chance is 50%, this is hardly an impressive performance. Contrary to common-sense expectations, presumed lie detection experts such as police officers do not perform much better than lay people (DePaulo & Pfeifer, 1986; Ekman & O'Sullivan, 1991; Ekman, O'Sullivan, & Frank, 1999; Hartwig, Granhag, Strömwall, & Vrij, 2004; Kraut, 1980; Vrij, 1993; Vrij & Graham, 1997). However, for a few recent exceptions concerning police officers' ability to detect real-life high-stake lies, see Vrij and Mann (2001) and Mann, Vrij, and Bull (2004).

Judgment biases

When analysing accuracy for truthful and deceptive accounts separately, one often finds that truthful statements are identified with greater accuracy than are deceptive ones. This phenomenon, called the *veracity effect* (Levine, Park, & McCornack, 1999) stems from the fact that people have a tendency to judge statements as truthful rather than deceptive. This *truth bias* (Buller & Burgoon, 1996; Köhnken, 1989) may be a result of people being confronted with truthful statements more often than deceptive in daily life; therefore they expect statements to be truthful even in an experimental situation. Moreover, social and conversational rules prevent people from being overly suspicious when talking to other people (Vrij, 2000).

Subjective vs. objective cues to deception

One commonly proposed explanation for the mediocre human lie detection performance is that people have faulty notions about the characteristics of deceptive behaviour (Strömwall, Granhag, & Hartwig, 2004). Research on people's beliefs about deception (subjective cues) has shown that both lay people and presumed lie experts believe that deception is associated with more speech disturbances (such as hesitations and speech errors), longer and more frequent pauses, more gaze aversion, an increase in smiling and movements such as self-manipulations, hand/finger and leg/foot movements (Akehurst, Köhnken, Vrij, & Bull, 1996; Granhag, Andersson, Strömwall, & Hartwig, 2004; Strömwall & Granhag, 2003; Vrij & Semin, 1996). Generally, these behaviours are indicators of nervousness (Vrij, 2000). It seems as if people believe that a liar will feel nervous and act accordingly; however, far from all liars do (Köhnken, 1989). In contrast, meta-analyses of behaviours exhibited by liars and truth tellers have revealed only a few behaviours (objective cues) that distinguish liars and truth tellers. The general pattern is that liars have a tendency to speak with a higher-pitched voice, take longer pauses and make fewer leg/foot and arm/hand movements (DePaulo, 1992; Vrij, 2000; Zuckerman, DePaulo, & Rosenthal, 1981). A recent meta-analysis showed that liars are among other things less forthcoming, more tense, that they tell less compelling stories and tend to include fewer unusual elements in their stories (DePaulo, Lindsay, Malone, Muhlenbruck, Charlton, & Cooper, 2003). In addition, it has been found that observers who watched a lying suspect rated him or her as having to think harder than did observers who watched a truth telling suspect (Vrij, Edward, & Bull, 2001). It has also been found that observers who had seen a truthful target made higher ratings on comfortableness, confidence, level of information and lower ratings on suspiciousness than did those who had seen a lying

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target (Anderson, DePaulo, & Ansfield, 2002). However, when explicitly ask to classify the statements as truths or lies in this study, the participants performed at the level of chance.

EFFECTS OF PRESENTATION MODE ON VERACITY ASSESSMENTS AND PERCEPTION OF STATEMENT

A number of studies have focused on how different presentation modes affect the perception of the testimony, including perception of deceptiveness. One set of studies has focused on adults who are suspected of having committed a crime, and whether it is easier for lie-catchers to detect deception when they are allowed to interrogate the suspect themselves compared to when watching the same interrogation on video (see Feeley & deTurck, 1997; Hartwig, Granhag, Strömwall, & Vrij, 2002; Hartwig et al., 2004). A second set of studies has focused on witnesses appearing on CCTV (closed-circuit television) compared to appearing live in court; the majority of these studies have been conducted with children who are victims of, or witnesses to, crime. For a discussion of the effects on CCTV on the quantity and quality of children's testimony, see Davies (1999), McAuliff and Kovera (2002) and Orcutt, Goodman, Tobey, Batterman-Faunce, and Thomas (2001). Below we will summarize the first set of studies, which are more relevant for the present study.

Studies on interrogators versus observers

A few studies have examined differences in deception detection accuracy between interactive and non-interactive contexts. The general finding from these studies is that passive lie-catchers (who watch the suspect on video) are as accurate (Burgoon, Buller, White, Afifi, & Buslig, 1999; Feeley & deTurck, 1997; Hartwig et al., 2002; Hartwig et al., 2004), and in some cases even more accurate (Buller, Strzyzewski, & Hunsaker, 1991; Granhag & Strömwall, 2001) in detecting lies than active lie-catchers (who interrogate the suspect themselves). Moreover, active interrogators have been found to have a more pronounced truth bias than observers (Buller et al., 1991; Granhag & Strömwall, 2001; Feeley & deTurck, 1997). One frequently proposed explanation for the finding that active lie-catchers tend to believe the suspects to a higher extent than passive lie-catchers (such as video observers) is that they are affected by the face-to-face immediacy of the suspect. More specifically, those present in the same room as the suspect may be more influenced by general conversation maxims (Granhag & Strömwall, 2001), prescribing that one should not act critically towards a conversational partner. Thus, facing a suspect is more similar to a conversation than watching a videotaped interrogation with the same suspect; this may cause live observers to evaluate the conversational partner with greater leniency than video observers (Hartwig et al., 2004).

Previous research has shown mixed results concerning the type of information video observers and interrogators report attending to. For example, some studies have found that video observers have a tendency to rely more on verbal cues when detecting deception compared to interrogators, who lean more towards using nonverbal cues (Buller et al., 1991; Feeley & deTurck, 1997; Gilbert & Krull, 1988; Granhag & Strömwall, 2001; Miller & Fontes, 1979, cited in Davis, 1999). However, the opposite pattern has also been found. In a study by Hartwig and colleagues (2004), the lie-catchers reported relying on verbal

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content more when they themselves were interrogating than when watching video. Since these findings point in different directions, research does not provide a basis for any specific prediction.

MEMORIES OF TRUTHFUL VERSUS DECEPTIVE STATEMENTS

The research conducted so far on how people remember other people's truthful and deceptive statements is meager (but see Polage, 2004, for a recent account on how distorting the truth affects the liar's own memory). However, on the basis of other results from the study of deception, some differences in memories of truthful and deceptive statement can be expected to occur. Specifically, research has found that truth tellers give longer and more comprehensive statements than liars (Vrij, 2004), thus truth tellers probably will provide the observers with more information to remember than will liars. In line with this, one could expect that observers who had seen a truthful statement therefore will provide more information in their memory report of the witness' statement, compared to observers who had seen a deceptive statement. Moreover, according to DePaulo and colleagues (2003), truth tellers' statements make more sense than liars'. Truth tellers' stories have been shown to be more plausible, more likely to be structured in a logical and sensible way and they are also more consistent, compelling and less ambivalent (DePaulo et al., 2003). Hence, it is reasonable to assume that observers watching a truthful statement will have a richer and more structured memory than those watching a deceptive statement. In other words, truthful statements make more sense than deceptive statements and research has shown that what makes sense is generally more easily remembered (Baddeley, 1999). On the basis of these results, it could be expected that truthful statements will be better remembered than deceptive statements.

THE PRESENT STUDY

As mentioned above, most deception studies focusing on presentation mode have compared active interrogators with passive observers seeing the target on video. This study will map observers' perception, assessments and memory when watching the testimony either passively live (henceforth 'live observers') or passively on video (henceforth 'video observers'). The effect of observers' perception, assessments of veracity and memory when watching videotaped versus live testimonies (for adult witnesses) has to our knowledge not been explored previously. The passive (in the sense that they only listen and do not ask questions) role of both live and video observers reflects the procedures found in many legal systems (van Koppen & Penrod, 2003). It is therefore of interest to obtain more knowledge on the effects that different presentation modes have on perception, assessments of veracity, and memory.

HYPOTHESES

The first hypothesis concerns differences in the observers' perception of the witnesses' statement and appearance due to the veracity of the testimony (i.e., truthful vs. deceptive). The second hypothesis concerns differences in judgment bias and perception of the witnesses' testimony due to presentation mode (i.e., live vs. video). The third hypothesis

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concerns the observers' memory performance, due to the veracity of the testimony (i.e., truthful vs. deceptive).

Hypothesis 1

In line with the meta-analysis by DePaulo and her colleagues (2003), we predicted that observers would perceive the truth telling witnesses as being more positive, pleasant, confident and forthcoming, and their statements as more plausible, detailed and convincing compared to lying witnesses. Truth telling witnesses would also be perceived as having to think less hard than lying witnesses (Vrij et al., 2001).

Hypothesis 2

Based on previous research reviewed above, we predicted that both live and video observers would exhibit a truth bias, and that this truth bias would be even more pronounced for live observers (Buller et al., 1991; Feeley & deTurck, 1997; Granhag & Strömwall, 2001). In line with the findings on live observers' more pronounced truth bias, we predicted that live observers would rate the witnesses' statements and appearance in more positive terms than would video observers.

Hypothesis 3

On the basis of the differences in quality between truthful and deceptive statements discussed above (DePaulo et al., 2003; Vrij, 2004), we predicted that truthful statements would be more accurately remembered than deceptive statements.

METHOD

Participants

The sample of witnesses consisted of 12 undergraduate students (5 males and 7 female) aged between 19 and 36 years ($M = 23$, $SD = 1.32$). They were guaranteed a payment of equal value of 280 SEK (approximately 40 USD) and were told that, in case they managed to convince a majority of observers that they were telling the truth, they would be given another 140 SEK. The sample of observers consisted of 122 undergraduate students (40 male and 82 female), 86% were law students, from Göteborg University and 14% were undergraduate students from other disciplines at Göteborg University. The participants' age ranged from 19 to 48 years with a mean age of 24.7 years ($SD = 4.45$). They were all paid the equivalence of 70 SEK (approximately 10 USD) and were told that if they made a correct veracity judgment of the witness, they would receive an additional 70 SEK.

Design

A 2 (Presentation mode: Video vs. Live) × 2 (Veracity: Truthful vs. Deceptive) between-group design was employed. In the Live condition, the observers watched the witnesses live in the same room, and in the Video condition (other) observers watched the same witnesses on video.

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Procedure

The event

Twelve undergraduate students (henceforth 'witnesses') were informed they were going to watch a staged accident. The accident took place on a parking lot and the two people involved in the accident were experienced stuntmen. One of the stuntmen drove a car, and while driving he was talking on a cell phone. When the driver was about to make a turn to the left, he drove too far to the right and hit a cyclist (the other stuntman). The cyclist fell to the ground and lay still, the driver stopped the car and ran out to see if the man was all right, which he was not. The witnesses were instructed to wait at a certain location on the parking lot to see the accident. All in all, the event lasted approximately 5 min (including time before and after the accident). The accident lasted approximately 30 s.

Subsequently, the witnesses were divided in two groups and sat in two different rooms. The first group, the truth tellers, was told that they were going to be interviewed about the accident. They were instructed to tell the truth about the event, and to answer every question as truthfully as possible. The other group, the liars, was instructed to lie about the event. They were given a made-up proposition (in text) from the car driver who said: 'Change your testimony to my benefit, that is, say that it was the man with the bike who caused the accident, say that he came from out of nowhere, and that I had no chance to avoid hitting him. If you do this, I will give you 5000 SEK' (approximately 600 USD). The liars were then to imagine that they really needed the money and therefore accepted the proposal and agreed to lie. All witnesses had then approximately 5 min to prepare before they were interviewed.

Preliminary interview

Two interviewers, blind to the conditions, interviewed the witnesses. Simulating a preliminary field-interview by the police, the witnesses were asked to tell what they remembered from the accident. They were also asked how far away from the accident they had been standing and how well they saw the accident. Finally, they were asked to estimate the speed of the car and whom they considered responsible for the accident. In order to check whether the witness followed the instructions to tell the truth and lie, each interview was recorded on tape. All witnesses followed the instructions.

Hearing in 'court'

Three weeks after the preliminary interview, the witnesses came back for the hearing in court. Two persons, blind to the conditions, conducted the interviews. These two interviewers were different than the ones conducting the preliminary interviews. The interviewers conducted six interviews each, they acted in the same manner in all interviews and asked the same questions to all the witnesses. Each interview consisted of a free recall phase followed by 11 specific questions, repeating some of the questions from the preliminary interview and adding a number of new questions. In addition to the interview, the witness was asked to draw the scene of the accident on a whiteboard. The interview lasted from 4 min and 20 s to 10 min and 40 s, with an average of 6 min and 10 s. All the witnesses were watched by between four and seven participants (live observers). Subsequently, all witnesses were asked to assess how much truthful information they had provided in the interview on a scale ranging from 1 (*nothing was true*) to 7 (*everything was true*).

All hearings in court were videotaped with two cameras. The two cameras were placed, in front view of the interviewer and the witness, at the same distance from the interviewer and the witness as the live observers were sitting (for a discussion about the effects of the

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camera's point of view, see Lassiter, Geers, Munhall, Handley, & Beers, 2001). One camera was directed at the interviewer and the other camera was directed at the witness. The interviewer and the witness were half facing each other and half facing the camera, which made the observers able to view them from a slight angle. The two videos were edited to one. In this version, the interviewer was shown when introducing the witness and explaining why the witness was called to the hearing. The witness (and not the interviewer) was then shown during the rest of the interview. However, when the witness drew the scene of the accident on a whiteboard, the camera was zoomed out so that both the witness and the interviewer were shown on the video. All witnesses were videotaped and the editing were the same for all interviews. The distance between the live observers and the witness was four meters (approximately 13 feet). The distance between the live observers and the witness was comparable to the distance between the video observers and the witness on screen. The angle from which the witness and the interviewer were viewed was the same for both live and video observers. Both live and video observers saw the witness and the interviewer from the waist up, since a table was placed in front of the witness and the interviewer.

Video observers

The witnesses' videotaped testimonies were shown to as many observers as the witness had been watched by live in court. Video observers filled out the same questionnaires as the live observers.

Observers' background information

Before watching the interview, the observers (both live and video) were given background information stating that there had been an accident involving a car and a man with a bike. It was also explained that the technical investigation could not conclusively determine how the accident had happened, and that there were some uncertainties regarding who actually caused the accident, and that the two involved gave very different versions, and blamed each other. The background information also stated that it was as likely that the witness they were going to watch was lying as it was that the witness was telling the truth.

Different motives as to why the witnesses may be lying were offered in the background information. When the observers (both live and video) were about to watch a lying witness, the background information stated that the witness' preliminary statement had confirmed the driver's story about how the accident had happened (i.e. that the man with the bike was the guilty part of the accident), but that the witness may have accepted a bribe from the driver to make him appear as the innocent part. When the observers (both live and video) were about to see a witness telling the truth, the background information stated that the witness' preliminary statement had confirmed the story told by the man with the bike (i.e. that the driver of the car was to blame for the accident), but that the man with the bike might have bribed the witness to make him appear as the innocent part. The rationale for these instructions was that we believed it to be possible that observers would have the preconception that it is more plausible that the car driver is the guilty party in an accident between a car and a cyclist. In order to try to prevent that such a preconception would bias the veracity judgments, we provided motives for why both parties would distort the course of events in court. When the observers (live and video) had read the background information, they watched the interview, and then filled out three different questionnaires (see below). Each observer saw only one witness; and the total time for the interview and filling out the forms was approximately 20 min.

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Questionnaires

After observing the court hearings with the witness (either live or on video), the observers were asked to fill out three different questionnaires.

Questionnaire 1

The first questionnaire given to the observers concerned Hypothesis 1 and 2. First, the observers answered questions about gender, age, and educational level. They were then asked to answer fifteen questions about their perception of the witness statement and appearance. First, they were asked to rate to what extent the witness statement seemed plausible, detailed, convincing and to what extent the witness seemed confident in his or her statement. Second, they were asked to rate to what extent the witness had to think hard to remember. Third, they were asked to rate to what extent the witness was taking a defensive position while being questioned, and to what extent the witness appeared involved, sympathetic, natural, active, straightforward, eloquent, and relaxed. Fourth, they were asked to what extent the witness gave a pleasant impression, and finally, to what extent the witness seemed forthcoming. For each question the observers were asked to make ratings on a 7-point scale where 1 indicated *not at all* and 7 *very much*.

Questionnaire 2

The second questionnaire was related to Hypothesis 2. The observers were first asked to (on a 6-point scale) rate if the witness was lying when heard in court; where 1 meant *no, absolutely not*, and 6 *yes, definitely*. Each observer was then asked to rate how honest s/he believed the witness to be on a 10-point scale, ranging from 1 (*not honest at all*) to 10 (*completely honest*). Moreover, the questionnaire included a dichotomous truth/lie judgment, after which the observers were asked to assess how confident they were that this veracity judgment was correct on a scale ranging from 50% (*completely unsure*) to 100% (*absolutely sure*).

The observers were also asked to write down which cues they had used when assessing veracity. Furthermore, they were asked to rate which type of information they had used to justify their veracity assessments on a scale ranging from 1 (*only nonverbal behaviour*) and 10 (*only verbal behaviour*). The self-reported cues were categorized into a number of both verbal and nonverbal categories (see Granhag & Strömwall, 2001). The following verbal categories of cues were used: *Completeness, Confidence, Consistency, Details, Plausibility, Rehearsed story* and *Statement in general*, and the following nonverbal categories: *Body movements, Credibility in general, Gaze* and *Nervousness*.

Interrater reliability. Two individuals coded 30% of the observers' self-reported cues to judge veracity. The level of agreement between the two coders was 76%. That is, 76% of the observers' self-reported cues (verbal and nonverbal) were coded into the same categories by both coders. Disagreements were resolved in a conference between the two coders. Subsequently, one of the coders coded the remaining cues.

Questionnaire 3

Before filling out the third and final questionnaire, which was related to Hypothesis 3, the observers completed a 10 min filler task (unrelated to the study). The final questionnaire concerned the observers' own memory of the witness statement. They were asked to report (a) how well they considered themselves to remember the witness' statement on a scale ranging from 1 (*not well at all*) to 7 (*very well*), (b) how clear they considered their memory of the witness' statement to be, and (c) how detailed they considered their own

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memory of the witness' statement to be on scales ranging from 1 (*not at all*) to 7 (*very much*). In addition, the observers were asked to word for word, as accurately and as completely as possible, recall the witness' statement.

Information units. In order to set up an objective standard of the observers' memory performance, we broke down the recalled information into *information units*. To establish what information should be considered as an information unit, the following set of principles was created. (a) Statements about actors and the actors' performance were counted as one unit. That is, the sentence 'a man was smoking' was counted as one unit. (b) Reports of an object and a description of that object with one attribute were counted as one unit. The sentence 'there was a white car' was counted as one unit. (c) When objects were assigned with more than one attribute, the added attributes were counted as separate units. That is, the sentence 'there was a white, old-fashioned car' was counted as two units. (d) When one statement contained information about the actor, actions, and more than one attribute, the actor and the actions were counted as one unit, whereas the attributes were coded one by one. Thus, the sentence 'a short man with a beard was smoking' was counted as three different units 'a man was smoking', 'short' and 'beard'. The set of principles was adopted from a recent study by Allwood, Ask, and Granhag (2005).

Interrater reliability. Two individuals coded 20% of the observer's memory reports. The level of agreement between the two coders was 94%. That is, 94% of all the identified information units were identified by both coders. Disagreements were resolved in a conference between the two coders. Subsequently, one of the coders coded the remaining memory reports.

Accuracy of information units. After that the memory reports were broken down into information units, each unit was coded in terms of accuracy. Specifically; *correct units*, indicating a perfect match between the reported information unit and the verification data; *incorrect units*, when the information was incorrect (e.g., the witness in court said that the speed of the car was 30 km/h but the observer reported that the witness had said that the speed of the car was 10 km/h); and *confabulations*, when the statement contained information that was made up by the observer (e.g., the observer reported the witness had said that the car driver and the cyclist knew each other, while such information was never provided by the witness).

Interrater reliability. Two individuals coded 20% of the information units. The interrater agreement for these codings was 93%. The two coders coded 93% of the information units identically. Disagreements were solved in a conference between the two coders. Subsequently, one of the individuals coded the remaining information units.

The total questionnaire containing all three forms, including the filler task took approximately 30 min to complete.

RESULTS

Preliminary analyses

Manipulation check

In order to find out whether the witnesses complied with instructions to lie or tell the truth a *t*-test was conducted. Truth tellers ($M = 6.83$, $SD = 0.41$) rated their truthfulness as

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significantly higher than did liars ($M = 3.50$, $SD = 1.05$), $t(10) = -7.26$, $p < 0.001$. Importantly, all liars followed the instructions and placed the blame on the man with the bike.

Word count

A *t*-test (based on a computer based word count) showed that the number of words reported by truth tellers ($M = 496.83$, $SD = 174.67$) did not differ significantly from the number of words reported by liars ($M = 441.67$, $SD = 269.17$), $t(10) = 0.42$, $p = 0.68$.

Observers' perception of the witnesses

Ratings pertaining to the witnesses' statement

We first conducted a 2 (Presentation mode: Live vs. Video) × 2 (Actual veracity: Truth vs. Lie) multivariate analysis of variance (*MANOVA*) for the four ratings pertaining to the witnesses' statement (i.e. plausibility, details, confidence, convincing story). We found a significant multivariate effect for Actual veracity, Wilks' $\lambda = 0.89$ [$F(4, 115) = 3.51$, $p < 0.01$], but no significant multivariate effect for Presentation mode, Wilks' $\lambda = 0.93$ [$F(4, 115) = 2.06$, $p = 0.09$]. The Actual veracity × Presentation mode interaction was not significant, Wilks' $\lambda = 0.96$ [$F(4, 115) = 1.13$, $p = 0.34$]. This confirmed Hypothesis 1 concerning perception of the witnesses' statements due to veracity, while Hypothesis 2 concerning perception of witnesses' statements due to presentation mode received no support (although all means were in the predicted direction). In terms of Actual veracity analyses of each individual dependent variable, using a Bonferroni adjusted alpha level of 0.0125, were conducted showing a significant main effect for *details* [$F(1, 118) = 13.43$, $p < 0.001$] ($M = 4.44$, $SD = 1.34$ vs. $M = 3.53$, $SD = 1.40$), that is, higher ratings for observers who had watched truthful statements (see Table 1 for mean scores and standard

Table 1. Means (and standard deviations) of observers' perception judgments broken down for presentation mode and actual veracity

	Presentation mode		Actual veracity	
	Live	Video	Truth	Lie
Statement				
Plausibility	4.75 (1.50)	4.59 (1.52)	4.73 (1.52)	4.62 (1.50)
Detailed story	4.18 (1.38)	3.80 (1.47)	4.44 (1.34)	3.53 (1.40)
Confidence	4.87 (1.37)	4.41 (1.56)	4.79 (1.54)	4.48 (1.42)
Convincing story	4.30 (1.57)	3.61 (1.39)	4.06 (1.51)	3.83 (1.53)
Appearance				
Involvement	4.08 (1.20)	3.55 (1.36)	3.82 (1.39)	3.81 (1.22)
Thinking hard	2.92 (1.22)	3.36 (1.30)	2.87 (1.29)	3.42 (1.21)
Defensive	4.50 (1.35)	4.97 (1.40)	4.60 (1.40)	4.85 (1.37)
Sympathetic	4.42 (1.48)	4.15 (1.33)	4.47 (1.48)	4.09 (1.30)
Straightforward	4.23 (1.25)	4.13 (1.45)	4.16 (1.44)	4.21 (1.27)
Natural	4.50 (1.59)	3.83 (1.52)	4.23 (1.70)	4.10 (1.46)
Active	3.25 (1.46)	3.08 (1.39)	3.26 (1.48)	3.07 (1.36)
Eloquent	3.95 (1.51)	3.22 (1.35)	3.76 (1.54)	3.40 (1.39)
Relaxed	4.28 (1.45)	3.62 (1.30)	4.08 (1.52)	3.81 (1.29)
Pleasantness	4.72 (1.33)	4.02 (1.28)	4.56 (1.25)	4.16 (1.43)
Forthcoming	5.13 (1.29)	4.78 (1.40)	5.27 (1.12)	4.62 (1.50)

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deviations). The means for the other three ratings were all in the predicted direction, that is, higher means for truthful than for deceptive statements.

Ratings pertaining to the witnesses' appearance

We conducted a 2 (Presentation mode: Live vs. Video) × 2 (Actual veracity: Truth vs. Lie) *MANOVA* for the nine different ratings pertaining to the witnesses' appearance (see Table 1). The ratings for *thinking hard* and *defensiveness* were excluded from the *MANOVA* since we predicted higher means for deceptive witnesses than for truthful witnesses, thus they were analysed separately. We found a significant multivariate effect for Presentation mode, Wilks' $\lambda = 0.84$ [$F(9, 108) = 2.25$, $p < 0.05$], but no significant multivariate effect for Actual veracity, Wilks' $\lambda = 0.91$ [$F(9, 108) = 1.25$, $p = 0.28$]. The Actual veracity × Presentation mode interaction was not significant, Wilks' $\lambda = 0.87$ [$F(9, 108) = 1.39$, $p = 0.20$]. This result was not in line with Hypothesis 1 concerning perception of the witnesses' appearance due to veracity, but confirmed the part of Hypothesis 2 concerning perception of the witnesses' appearance due to presentation mode. Analyses of each individual dependent variable, using a Bonferroni adjusted alpha level of 0.005, showed significant main effects for Presentation mode for two ratings: *eloquent* [$F(1, 116) = 7.70$, $p < 0.005$] ($M = 3.95$, $SD = 1.51$ vs. $M = 3.22$, $SD = 1.35$), *pleasant* [$F(1, 116) = 8.58$, $p < 0.005$] ($M = 4.72$, $SD = 1.33$ vs. $M = 4.02$, $SD = 1.28$). That is, the ratings were higher for live observers than for video observers, again, this was in line with the part of Hypothesis 2 stating that live observers would rate the witnesses' appearance in more positive terms than would video observers.

We conducted two 2 (Presentation mode: Live vs. Video) × 2 (Actual veracity: Truth vs. Lie) *ANOVAs*, with *thinking hard* and *defensive* as dependent variables. The *ANOVA* with *thinking hard* as dependent variable showed a significant main effect for Actual veracity [$F(1, 118) = 5.91$, $p < 0.05$] ($M = 3.42$, $SD = 1.21$ vs. $M = 2.87$, $SD = 1.29$). That is, the ratings reported by observers who had seen lying witnesses were higher, compared to the ratings given by observers who had seen truth telling witnesses, this finding was in line with Hypothesis 1. The main effect of Presentation mode was bordering on significance, $F(1, 118) = 3.86$, $p = 0.052$, indicating that the video observers ($M = 3.36$, $SD = 1.30$) rated the witness as thinking harder to remember than did the live observers ($M = 2.92$, $SD = 1.22$). There was no significant interaction between Presentation mode and Actual veracity, $F(1, 118) = 0.11$, $p = 0.74$. The *ANOVA* with *defensive* as dependent variable showed no significant main effect of Presentation mode, $F(1, 118) = 3.37$, $p = 0.07$. There was no significant main effect of Actual veracity, $F(1, 118) = 0.67$, $p = 0.41$, nor a significant interaction between Presentation mode and Actual veracity, $F(1, 118) = 0.010$, $p = 0.92$.

Accuracy in distinguishing between truthful and deceptive testimonies

The overall deception detection accuracy was modest, calculated from the dichotomous veracity judgments. The accuracy rate for live observers was 49.2% and for video observers 50.8%. A binominal test showed that neither live nor video observer achieved an accuracy level different than expected by chance (both $ps = 0.50$). The 6-point deception scale was recoded so that 6 indicated *totally accurate* and 1 *totally inaccurate*. A 2 (Presentation mode: Live vs. Video) × 2 (Actual veracity: Truth vs. Lie) analysis of variance (*ANOVA*) showed that there was no significant main effect of Presentation mode on the observers' accuracy ($M = 3.52$, $SD = 1.36$ and $M = 3.41$, $SD = 1.37$ respectively;

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$F(1, 118) = 0.43$, $p = 0.51$). Furthermore, there was no difference in the observers' accuracy ratings due to Actual veracity ($M = 3.55$, $SD = 1.36$ and $M = 3.39$, $SD = 1.37$; respectively; $F(1, 118) = 0.21$, $p = 0.65$. No significant interaction effect was found, $F(1, 118) = 0.10$, $p = 0.75$.

Judgment bias

Both live observers and video observers stated *this statement is deceptive* more often than *this statement is truthful* (55.7% respectively; 62.3% of the cases). That is, both groups of observers showed a slight lie bias. Overall, a significant lie bias was detected $\chi^2(1, N = 122) = 3.97$, $p < 0.05$, which was contrary to the part of Hypothesis 2 predicting an overall truth bias. An independent samples t-test showed that the live observers judged the witnesses as significantly more honest ($M = 6.13$, $SD = 2.43$) than did the video observers ($M = 5.34$ $SD = 2.19$), $t(120) = 1.88$, $p < 0.05$ (one-tailed). This was in line with the part of Hypothesis 2 stating that live observers would perceive the witnesses as more honest than would video observers.

Confidence in the veracity judgments

A 2 (Presentation mode: Video vs. Live) × 2 (Actual veracity: Truthful vs. Deceptive) between-group *ANOVA* revealed no significant main effect of presentation mode on confidence ($M = 75.57$, $SD = 11.62$ and $M = 72.30$, $SD = 12.44$, respectively); $F(1, 118) = 2.20$, $p = 0.14$. Furthermore, there was no significant main effect of actual veracity on observers' confidence judgments ($M = 73.17$, $SD = 12.42$ and $M = 74.68$, $SD = 11.83$), $F(1, 118) = 0.48$, $p = 0.49$. The interaction was not significant, $F(1, 118) = 1.05$, $p = 0.31$. Noteworthy, there was a significant negative correlation between accuracy and confidence, $r = -0.25$, $n = 122$, $p < 0.01$, showing that observers were more confident when making an incorrect veracity judgment than when making a correct one.

Self-reported cues to deception

Concerning the use of verbal versus nonverbal information as a basis for the veracity judgment, the observers were located in the higher end of the scale, which indicated a preference for verbal cues ($M = 6.73$, $SD = 1.54$). An independent samples t-test showed that live observers ($M = 7.00$, $SD = 1.29$) reported to having used verbal cues to a higher extent than video observers ($M = 6.46$, $SD = 1.73$). This difference was close to significant, $t(120) = 1.96$, $p = 0.052$. Live observers produced 77.5% verbal cues and video observers produced 64.8% verbal cues. The most frequently reported cue to deception regardless of condition was plausibility (see Table 2).

The live observers produced an average of 2.21 ($SD = 0.88$) cues per person and the video observers an average of 2.00 ($SD = 0.89$) cues per person. A 2 (Presentation mode: Live vs. Video) × 2 (Actual veracity: Truth vs. Lie) *ANOVA* was conducted with the total number of cues produced as a dependent variable showed no significant difference for Presentation mode [$F(1, 118) = 1.76$, $p = 0.19$] ($M = 2.21$, $SD = 0.88$ vs. $M = 2.00$, $SD = 0.89$) or for Actual veracity [$F(1, 118) = 0.12$, $p = 0.73$] ($M = 2.13$, $SD = 0.70$ vs. $M = 2.08$, $SD = 1.04$). However, a significant interaction was found between Presentation mode and Actual veracity [$F(1, 118) = 12.19$, $p < 0.001$], showing that live observers

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Table 2. Self-reported cues justifying judgments of deceptiveness and truthfulness broken down for live and video observers in percentages, frequencies in parentheses

	Live		Video	
Cue category	Truthful	Deceptive	Truthful	Deceptive
Verbal	72.88 (43)	81.43 (57)	66.60 (28)	63.95 (55)
Completeness	3.38 (29)	4.28 (3)	—	3.49 (3)
Confidence	13.56 (8)	12.85 (9)	14.29 (6)	13.95 (12)
Consistency	15.25 (9)	10.0 (7)	9.52 (4)	8.13 (7)
Details	11.86 (7)	18.57 (13)	—	9.30 (8)
Plausibility	20.34 (12)	21.4 (15)	28.57 (12)	19.77 (17)
Rehearsed story	1.69 (1)	10.00 (7)	2.38 (1)	5.81 (5)
General statement	6.78 (4)	4.28 (3)	11.90 (5)	3.49 (3)
Nonverbal	27.12 (16)	18.57 (13)	33.30 (14)	36.05 (31)
Body movements	—	4.28 (3)	—	4.65 (4)
Credibility	22.03 (13)	5.70 (4)	19.04 (8)	9.30 (8)
Gaze	1.69 (1)	5.70 (4)	2.38 (1)	9.30 (8)
Nervousness	3.38 (2)	2.85 (2)	11.90 (5)	12.79 (11)
Total	100 (59)	100 (70)	100 (42)	100 (86)

produced more cues when judging truthful witnesses than when judging lying witnesses ($M = 2.45$, $SD = 1.15$ vs. $M = 1.97$, $SD = 0.32$), while in contrast, video observers produced more cues when judging lying witnesses than when judging truthful witnesses ($M = 2.30$, $SD = 0.92$ vs. $M = 1.71$, $SD = 0.78$).

Tests for significance of proportion were conducted separately for live observers and video observers in order to examine whether the groups produced more verbal than nonverbal cues. The tests revealed that both live observers ($z = 6.25$, $p < 0.001$) and video observers ($z = 3.37$, $p < 0.001$) produced more verbal than nonverbal cues. Moreover, in order to investigate whether live observers produced a larger proportion of nonverbal cues than video observers, a test for significance of difference between two proportions was conducted. The test showed that live observers reported a significantly larger proportion of verbal cues than video observers ($z = 3.20$, $p < 0.001$). All cues used to justify the veracity judgments broken down for presentation mode and veracity are presented in Table 2.

Subjective memory performance

A 2 (Presentation mode: Live vs. Video) × 2 (Actual veracity: Truth vs. Lie) *ANOVA* was conducted for each of the measures mapping the observers' subjective memory of the witnesses' statements: that is (a) how well the observers thought they remembered the statement, (b) clarity of their memory, and (c) how detailed their memory was. The results showed that live observers considered themselves to remember the witnesses' statements significantly better ($M = 5.33$, $SD = 1.03$) than video observers ($M = 4.80$, $SD = 1.22$), $F(1, 118) = 6.49$, $p = 0.012$. We found no main effect for actual veracity, nor a significant interaction effect. We also found that live observers rated their memory of the statements as significantly clearer ($M = 4.92$, $SD = 1.14$) than did video observers ($M = 4.40$, $SD = 1.17$), $F(1, 118) = 5.73$, $p < 0.05$. Again, we found no significant main effect for actual veracity, nor any significant interaction effect. Finally, we found no significant main or interaction effects for the observers' ratings of how detailed they thought their memory was.

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Table 3. Mean values and standard deviations for live and video observers' memory performance broken down for deceptive and truthful statements (total number of units, correct units, incorrect units and confabulations)

	Total units	Correct units	Incorrect units	Confabulations
Live observers				
Deceptive	12.47 (4.31)	9.47 (4.31)	2.36 (1.18)	1.29 (0.76)
Truthful	19.19 (6.04)	16.45 (6.22)	2.36 (1.53)	1.14 (0.38)
Video observers				
Deceptive	12.03 (4.28)	9.47 (4.07)	2.30 (1.26)	1.57 (1.13)
Truthful	17.26 (4.58)	14.61 (4.20)	2.33 (1.55)	1.25 (0.50)

Objective memory performance

A 2 (Presentation mode: Live vs. Video) × 2 (Actual veracity: Truth vs. Lie) *ANOVA* was conducted for each of the four measures mapping observers' objective memory of the witnesses' statements: that is (a) total information, (b) correct information, (c) incorrect information, and (d) confabulations (for mean values see Table 3).

For total information we found a significant main effect for Actual veracity $F(1, 118) = 46.99$, $p < 0.001$. That is, observers who had watched truthful statements reported more information ($M = 17.48$, $SD = 5.32$) than did observers who had watched deceptive statements ($M = 11.43$, $SD = 4.37$). We found no significant main effect of Presentation mode, nor any significant interaction effect.

Also, for correct information we found a significant main effect for Actual veracity, $F(1, 118) = 48.88$, $p < 0.001$. That is, observers who had watched truthful statements reported significantly more correct information ($M = 15.53$, $SD = 5.34$) than did those who had watched deceptive statements ($M = 9.47$, $SD = 4.16$). We found no significant main effect of Presentation mode, nor any significant interaction effect.

For incorrect answers and for confabulations, we found no significant main effects or interaction effects.

Adjustment for differences in the amount of information reported

Since the observers each reported a different amount of information, we conducted an adjusted memory test. For each person, we calculated the proportion of correct information, incorrect information and confabulations of all information reported (i.e. output-bound memory, see Koriat & Goldsmith, 1996).

Again, a 2 (Presentation mode: Live vs. Video) × 2 (Actual veracity: Truth vs. Lie) between subjects *ANOVA* was conducted for each of the different memory measures (see Table 4).

For correct information, we found a significant main effect for Actual veracity, $F(1, 118) = 6.89$, $p < 0.01$, showing that observers who had watched truthful statements reported a higher proportion of correct information ($M = 0.88$, $SD = 0.11$) than did observers who had watched deceptive statements ($M = 0.81$, $SD = 0.15$). Moreover, for incorrect information, we found a significant main effect for Actual veracity, $F(1, 118) = 8.80$, $p < 0.01$, that is, observers who had watched deceptive statements reported a higher proportion of incorrect information ($M = 0.21$, $SD = 0.11$) than did observers who had watched truthful statements ($M = 0.14$, $SD = 0.09$).

For confabulations, a close to significant main effect for Actual veracity was found, $F(1, 118) = 4.02$, $p = 0.06$. That is, the observers who had watched deceptive statements

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Table 4. Live and video observers' memory performance broken down for deceptive and truthful statements (Correct units, incorrect units and confabulations reported in percentages of the total number of reported units)

	Correct units (%)	Incorrect units (%)	Confabulations (%)
Live observers			
Deceptive	82.3	15.1	2.6
Truthful	89.5	9.1	1.4
Video observers			
Deceptive	83.3	13.5	3.2
Truthful	88.1	10.9	1.0

had a tendency to confabulate relatively more ($M = 0.16$, $SD = 0.14$) than observers who had watched truthful statements ($M = 0.07$, $SD = 0.03$). There was no significant main effect for Presentation mode, nor a significant interaction effect. Overall, we found support for Hypothesis 3, stating that truthful statements would be better remembered than deceptive statements.

DISCUSSION

The major aim of the present study was to investigate possible differences between live and video observers in terms of (a) their perception of the witnesses' statement and appearance, (b) their assessment of the witnesses' veracity and (c) their memory performance. The rationale behind the study is that witnesses sometimes appear live before the court and sometimes appear on video, but that research has very little to offer when it comes to the potential effects of these different presentation modes. Summarizing the most important findings, we found (i) actual veracity affected the observers' perception of the witnesses' statement, whereas presentation mode affected the observers' perception of the witnessess' appearance; (ii) both live and video observers were poor in terms of assessing veracity; (iii) live observers rated the witnesses as being more honest than did video observers; and (iv) that the observers had a better memory for truthful statements, than for deceptive statements. Below we will discuss each of these findings in closer detail.

Differences in perception of the witnesses

Effects of veracity on perception of the witnesses

It seems that when people are asked to assess veracity, they pay attention to non-diagnostic cues, resulting in poor accuracy rates. However, there are some indications that people have an implicit ability to discriminate between truthful and deceptive accounts (DePaulo & Morris, 2004). That is, people seem to be better at assessing veracity than they know themselves. In a study by Vrij and colleagues (2001), it was found that observers who watched a lying target rated that target as having to think harder than did observers who saw a truth telling target. Similarly, Anderson and colleagues (2002) found that observers watching a truthful target made higher ratings on comfortableness, confidence, level of information and lower ratings on suspiciousness than did those watching a lying target.

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Taken together, these findings indicate that people have some ability to separate truthful and deceptive accounts, an ability that may surface when people are asked to assess a statement or a suspect in terms of other characteristics than deceptiveness. In line with our prediction and previous research (Vrij et al., 2001), the observers who watched truthful witnesses rated these as having to think less hard than did the observers who watched lying witnesses. However, the observers failed to use this cue when assessing veracity. Moreover, truth tellers were rated as telling more detailed stories than liars, which is in line with our hypothesis as well as with previous findings (DePaulo et al., 2003).

It seems as if the veracity of the witnesses had an effect on how the observers perceived the statements of the witnesses, but not on how the observers perceived the appearance of these witnesses (i.e. there were no differences between lying and truth telling witnesses in terms of how positive, pleasant, confident and forthcoming they were perceived to be). This is in contrast to previous findings (DePaulo et al., 2003). One speculative explanation is that lying and truth telling witnesses were very similar in terms of appearance.

Effects of presentation mode on perception of the witnesses

Overall, presentation mode had a greater impact on how the mock jurors perceived the witnesses' appearance, than had actual veracity. In line with our prediction, the live observers rated the witnesses more positively than did the video observers. Specifically, the results showed that live (vs. video) observers rated the witnesses as being more eloquent and more pleasant. Critically, these differences occurred although live and video observers watched the very same witnesses. The result that live observers evaluated the witnesses more positively compared to video observers is in line with our finding that live observers attribute more honesty to the witnesses than do video observers. Moreover, these findings match those found in other studies, where live observers have been found to evaluate the target with greater leniency than do video observers (e.g. Buller et al., 1991; Feeley & deTurck, 1997; Granhag & Strömwall, 2001). Furthermore, the results also support previous studies investigating adults' perception of child witnesses whose testimonies is taken either live in court or in form of testimonies given via CCTV or by videotaped statements. It has been found that children testifying live in court are viewed more positively than children testifying out of court. For example, children in court are viewed as more confident, more intelligent and less likely to provide false statements (see Tobey, Goodman, Batterman-Faunce, Orcutt, and Sachsenmaier, 1995, Goodman et al., 2004). An explanation for this is that video observers may more easily adopt the role of an objective judge, and thus be more able to, with undivided attention, evaluate the witness in a critical way (Burgoon & Newton, 1991). There are at least two possible explanations for this; these explanations may work in tandem. First, the physical proximity to the witnesses may make the live observers feel obliged to submit to normal conversational rules, which do not allow for an equally critical evaluation of the conversational partner (Vrij, 2000). Second, it may be that the physical proximity made the live observers identify more with the witnesses, and feel more sympathy for them, which then was reflected in the more positive perception of the witnesses (Burgoon & Newton, 1991).

In contrast to video observers, the live observers had the opportunity to note the interrogator's nonverbal reactions in response to the witnesses' answers. However, we do not believe that this difference between the modes of presentation had any major impact on our results, as the two interrogators were blind to the conditions. The interrogators also followed our instructions to act in an objective and protocol-like manner.

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Accuracy and biases in veracity judgments

Video observers and live observers were equally poor at detecting deception. One plausible explanation for this finding is that there is a major difference between the present and past studies. Previous research has examined differences between active live observers (performing an interrogation) and passive video observers (watching the very same interrogation on video), whereas the present study compared passive live observers and passive video observers. Specifically, the differences between the two conditions in the present study were rather small (none of the observers asked any questions), and this may explain the lack of difference in terms of deception detection accuracy.

Contrary to our expectation, an overall lie bias was found. Both live and video observers had a tendency to guess that the statement was deceptive more often than they guessed that it was truthful. One possible explanation for this finding is that law students acted as observers and were placed in a legal setting, which may have triggered suspiciousness towards the witnesses. This explanation is supported by the finding that police officers interrogating suspects does not seem to show any truth-bias (see e.g., Hartwig et al., 2004). In line with our hypothesis, the live observers rated the witnesses as being more honest than did the video observers. One possible explanation for this result is that the live observers were affected by the face-to-face immediacy of the witness.

Confidence in veracity judgments

Previous research suggests that people in general tend to be overconfident in their ability to detect lies (see e.g. O'Sullivan, Ekman, & Friesen, 1988; Vrij, 2000). In line with these findings, the observers in the present study tended to be overconfident when assessing veracity. Noteworthy, the results revealed that the observers were more confident when making incorrect veracity assessments, than when making a correct one. This result lends further support to previous findings showing that people have rather poor metacognitive understanding of their performance when assessing veracity (DePaulo, Charlton, Cooper, Lindsay, & Muhlenbruck, 1997).

Self-reported cues to deception

Both live and video observers reported relying more on verbal than nonverbal behaviour, this tendency could be found both in their ratings of the information used as a basis for their veracity judgment, as well as on the proportion of their self-reported cues.

However, live observers had a more pronounced tendency to rate the use of verbal information as important for their veracity judgment, and produced a larger proportion of verbal cues than video observers. This contrasts with some findings from previous research (Buller et al., 1991; Granhag & Strömwall, 2001), however, it may be the case that it is difficult to compare results from the current study with those stemming from previous research on the effects of presentation modes. The video observers in previous studies have been compared to observers interacting live with the target, and not passive live observers as in the current study. Future research on passive live and video observers may provide further explanations for the pattern observed in this study.

The observers' subjective and objective memory performance

We found that the live observers believed they had a better memory of the witness' statement compared to video observers. This finding fits well with the results that live

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observers perceived the witness' statement as more convincing than did video observers. However, our analysis of objective memory performance showed that the live observers' optimism was unfounded. In contrast to previous studies where video observers have been found to remember more information about a witness testimony than live observers (Swim, Borgida, & McCoy, 1993; Thomson, 1989, cited in Davies, 1999), no differences in terms of objective memory performance due to presentation mode was found. Instead we found significant differences in objective memory performance due to actual veracity. Specifically, and in line with our hypothesis, observers who had seen truthful statements reported a significantly larger proportion of correct information and a significantly smaller proportion of incorrect information. This result fits well with recent findings showing that deceptive statements tend to be less plausible, less structured in a logical and sensible way, and more internally discrepant (DePaulo et al., 2003). These findings, in turn, are fully in line with the well-known fact that our memory performance is dependent on, among many things, the organization and structure of the to-be-remembered material (Baddeley, 1999).

The finding that the observers who had watched a truthful statement had a significantly better memory than had observers who had seen a deceptive statement, shows that objective (but not subjective) memory might be yet another implicit cue to deception. That is, any (explicit) utilization of memory as a cue demands that the observers' memory report is gauged against the actual statement, since the observers themselves did not seem to be aware of the fact that their objective memory performance differs due to whether they have had watched truthful or deceptive statements.

Conclusions and psycho-legal implications

In the present study, live and video observers watched and rated the very same witnesses. Nevertheless, we found significant differences in terms of their perception of the witnesses' appearance. Specifically, live (vs. video) observers rated the witnesses' appearance in a more positive way and perceived the witnesses as being more honest. The fact that live observers had a more positive attitude toward the witnesses did not, in the present study, translate into any differences in terms of deception detection accuracy, nor to any differences in terms of judgment biases. However, this is not to say that the video observers' more skeptical attitude would not play an important role in real-life cases. In fact, we believe it is reasonable to argue that presentation mode is an important factor in the process of assessing witnesses' testimonies.

Furthermore, there is growing interest in implicit lie detection (Granhag & Strömwall, 2004), and several researchers have suggested that this indirect form of deception detection is a promising approach for the future (DePaulo & Morris, 2004; Granhag & Vrij, 2005; Vrij, 2004). The results of the present study does not only support previous findings on implicit lie detection, but also extend previous knowledge by showing that lie-catchers' memory performance might be yet another implicit cue to deception.

Finally, the present study shows that the presentation mode is a crucial part of the message. Future research faces an important challenge in investigating the many different psychological effects that may result from the use of new courtroom technology. Critically, policy makers involved in the reform work facing many legal systems—due to for example a call for increased effectiveness—need to consider the outcome of this research.

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Exhibit B

Exhibit B

Videotape in the Courtroom

Effects In Live Trials

By F. Joseph Boster,
Gerald R. Miller, and
Norman E. Fontes

Part III

One problem facing the legal system today is the unavailable witness. Because of death, illness, relocation, professional commitments, or similar reasons, a witness may be unable to testify. Usually, the missing witness' deposition is read into the trial record. It can be argued that this procedure is often biased; i.e., it may result in a different trial outcome, as measured by verdict or award, than would have been obtained had the witness testified live.

For example, if the reader presented the deposition in a dull monotone, the jurors might become bored and forget the testimony. Conversely, if the actual witness had testified, he might have been quite dynamic, causing the jurors to remember most of the testimony.

On the other hand, consider a shrewd attorney who, knowing a witness is rather dull, encourages his or her absence and substitutes an attractive court reporter to read the deposition. A jury, especially one composed primarily of members of the opposite sex, might respond very favorably to the read testimony; while had the witness appeared live, the jury might have evaluated the testimony neutrally or even unfavorably. In either of these two cases, permitting the deposition to be read into the trial would probably significantly influence the trial outcome, albeit in different directions.

One proposed method of circumventing these kinds of difficulties involves videotaping depositions. This procedure requires an unbiased environment in which attorneys can take the depositions of witnesses.[1] This interaction can then be videotaped; if necessary, a judge can edit the tapes to eliminate inadmissi-

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ble testimony before they are shown.

Unfortunately, the assumption that videotaped depositions are unbiased may also be questioned on the basis of certain social scientific evidence. Sociologists Paul Lazarsfeld and Robert Merton stress that the mass media have a status-conferral function:

"...enhanced status accrues to those who merely receive attention from the media.... The mass media bestow prestige and enhance the authority of individuals and groups by *legitimizing their status.* Recognition (by the media) testifies that one has arrived, that is, one is important enough to have been singled out from the large anonymous masses, that one's behavior and opinions are significant enough to require public notice."[2]

Furthermore, studies have consistently revealed that television is the most credible mass medium.[3] Since there are no observable differences between television and videotape monitors, persons may react similarly toward persons who appear on these two media. As a result, when a witness' testimony is presented via videotape rather than live, its status and/or credibility may be markedly enhanced. If so, this would produce bias that would be reflected in more verdicts or awards by jurors favoring the videotaped witness's litigant.

In addition, there are many reasons a witness may be unable to testify live, and there are numerous attributions jurors may make concerning his or her absence. A juror might reasonably conclude that the videotape appearance results from pressing business elsewhere; the juror may perceive the witness as an important person with many commitments. If the juror reasons this way, videotaped testimony will probably have a disproportionate impact, since the juror's evaluation of the witness' importance will be inflated. This situation would result in jurors placing greater credence in the videotaped witness' testimony, and might ultimately produce a trial outcome more favorable toward the litigant for whom the videotaped witness was testifying.

Much of our own research has investigated the effect of the medium of presentation on trial outcomes. For example, Miller, Bender, Boster, Florence, Fontes, Hocking, and Nicholson report results from an experiment where jurors viewed a re-enactment of the opening two hours of a will contest trial.[4]

Afterward jurors were asked to fill out a questionnaire containing items designed to measure retention of testimony presented in the second hour of the trial. So that the jurors would believe their verdicts would be binding on the litigants, they were told the questionnaire was part of a study on jury size in which the litigants had agreed to participate.

In this study, the medium by which the trial was presented to the jurors was varied. In the live condition, jurors viewed the re-enactment under normal trial conditions. This live re-enactment was unobtrusively videotaped, ostensibly to provide a record of the trial but actually to create a stimulus for the other two conditions. In the monochromatic condition, jurors viewed the black-and-white videotape of the trial re-enactment. The same courtroom was used, and videotape monitors were placed in positions where jurors could easily see them. The same procedure was used in the third condition except that the color videotape of the trial was presented to the jurors.

Thirty-one jurors participated in each of the three conditions. The results indicated that the medium of presentation had no significant effect on the extent to which jurors retained trial-related information.

In a second study, juror responses were again found to be largely unaffected by the medium of presentation.[5] Miller, Bender, Florence, and Nicholson had jurors view an entire re-enacted trial, once again creating the impression that the jurors were viewing an actual case which would require them to render a decision.

Jurors were told the litigants had agreed to allow National Science Foundation researchers to pass out a questionnaire on the trial, and that the research dealt with jury size.

In the live condition, jurors viewed the actual re-enactment while it was being videotaped, again supposedly to provide a record of the case, though the videotape actually was to be used for the other experimental condition. In the videotape condition, jurors viewed the trial on black-and-white videotape. Fifty-two jurors participated in the live condition and 48 jurors participated in the videotape condition.

After the trial, jurors completed a questionnaire containing measures of verdict, amount of award (if any), attorney credibility, retention of trial-related information, and juror interest and motivation. Analysis of these responses revealed no significant differences between the two media for any of the five measures of juror response.

The results of these two studies seem to call into question the reasoning developed earlier in this article: although it may seem reasonable to expect that the medium by which testimony is presented will have a strong impact on jurors' responses to the testimony, research evidence provides no support for this expectation. There is, however, one crucial difference between the way videotape would be used to deal with the problem of the unavailable witness and the way videotape was used in the two previous articles in this series.

In these studies, complete trials or large segments of trials were videotaped, and the results obtained were compared with results obtained from complete trials or large segments of trials re-enacted live. As a result, all jurors saw testimony presented via only one medium.

However, if videotape were used as a method to present testimony from an unavailable witness, only that particular deposition would appear on videotape, with the rest of the trial proceeding normally. Thus, the jurors would see different segments of the trial through different media. In this case, the crucial issue is not comparing live trials with videotaped trials, but rather assessing the impact of interspersing a segment of videotape into an otherwise live trial. The study we will now report dealt with this issue.

Four Varied Conditions

This study involved four conditions which varied the medium of presentation for two expert trial witnesses.

In one condition, both expert witnesses testified live under fairly typical court conditions.

In a second condition, jurors viewed the testimony of both expert witnesses on black-and-white videotape.

In a third condition, the expert witness called by the plaintiff testified live, while the testimony of the expert witness called by the defendant was shown to jurors on black-and-white videotape.

In the final condition, the testimony of the expert witness called by the plaintiff was presented on black-and-white videotape, while the expert witness called by the defendant testified live. Jurors were randomly assigned to one of these four conditions.

Participants in this study were 106 residents of Flint, Michigan, drawn from the jury pool of the 68th District Court. Since some participants were unable to serve because of health problems or absence from the district, an unequal number of jurors participated in the four conditions: 22 participated in the condition where both expert witnesses testified live, and 28 participated in each of the remaining three conditions.

Procedures

Upon entering the courthouse, jurors were escorted to a courtroom. The setting differed from the normal courtroom in two ways: (1) there were more than the usual number of jurors present; and, (2) some videotape equipment (a camera and two monitors) was in the room. These unusual circumstances were explained by the presiding judge, the Honorable Dale A. Riker, who emphasized that the trial was being conducted in cooperation with a National Science Foundation study of jury size.

Judge Riker went on to explain that the camera was being used to provide a record of the trial for the researchers and added that the case involved a change of venue. These comments provided a rationale for the videotaped testimony in the videotape conditions; because of the change of venue, the witness, or witnesses, could not be present. Finally, the judge assured the jurors that their decision would be binding upon the litigants.

The case presented to the jurors involved an automobile accident where the defendant admittedly was at fault. The point of contention concerned injuries. The plaintiff claimed his wife's back injuries had been sustained as a result of the accident, while the defendant argued her back problems resulted from a previous back condition, inadequate treatment, negligence in following her physician's instructions, and her weight problem. The trial lasted approximately two hours and 15 minutes.

The trial participants included two physicians, one of whom testified for the plaintiff and the other for the defendant; the wife of the plaintiff (who was the person involved in the accident); two attorneys; and the judge. The first three participants were trained actors; the attorneys were a lawyer and a law school student; and as indicated, the judge was 68th District Court Judge Dale A. Riker.

When videotaped testimony was shown during the trial, the monitors were placed in clear view of the jurors. The videotape recorder was located in a room behind the courtroom, out-of-sight of the jurors. The tape of the relevant testimony was made prior to the study.

After presentation of the trial, the jurors completed a questionnaire. The questionnaire contained a measure of monetary award to the plaintiff; a set of 41, multiple-choice items designed to measure the amount of trial-related information retained by the jurors; credibility measures for each of the five major trial participants (i.e., the defendant's expert witness, the plaintiff's expert witness, the plaintiff's wife, and the two attorneys); and a measure of whether each of seven issues in the case favored the plaintiff or the defendant.

Results

Analysis of the questionnaire data revealed that the medium by which the defendant's expert witness testified had little effect on trial outcomes. On the other hand, the medium by which the plaintiff's expert witness testified did have an effect on trial outcomes, although the effect was subtle.

Whether the plaintiff's expert witness appeared live or on videotape had no direct effect on trial outcomes, as measured by the amount of award to the plaintiff. Nevertheless, the medium of presentation did influence a number of other variables measured on the questionnaire, most notably jurors' perceptions of the expert witness' trustworthiness and sociability. Perhaps the most interesting aspect of these results concerns the direction of the effects; specifically, the testimony of the plaintiff's expert witness was better retained and more credible when he appeared live than when he appeared on videotape.

Despite this finding, we are extremely cautious about attributing this effect to a general tendency of persons to present themselves more favorably when they appear live. Our caution stems from the fact that in this study the effect of the medium of presentation on the testimony of the defendant's expert witness was in the opposite direction; i.e., his testimony was generally better retained and more credible when he appeared on videotape, rather than live.

Although this effect was not statistically significant, we suspect that some witnesses will make a more favorable impression on jurors when appearing live, while others will make a more favorable impression on videotape. Perhaps future research will uncover those characteristics which differentiate persons who excel in live situations from those who fare more favorably on videotape.

In addition, we discovered that three of the variables affected by the medium of presentation of the plaintiff's expert witness were correlated with jurors' perceptions of the important issues in the case. Specifically, jurors felt the issues favored the plaintiff when they also viewed the plaintiff's expert witness as highly sociable and highly trustworthy and when they perceived that the plaintiff's wife was highly trustworthy. Moreover, the way the jurors perceived the important issues in the case was highly correlated with subsequent trial outcomes, as would be expected.

Thus, although the medium of presentation exerted no direct effect on the trial outcome, it did exercise an indirect effect. Specifically, it influenced certain dimensions of witness credibility, which affected jurors' perceptions of the important issues in the case, which eventually influenced the trial outcome.

While this effect is subtle, it is nonetheless real. These results suggest that videotaped depositions may indeed have a biasing effect on trial outcomes. Unfortunately, we are less certain of the direction of the bias for any given instance of testimony. At times, it may be beneficial to one's case to have certain witnesses appear on videotape; while on other occasions, it may be harmful. This conclusion awaits further confirmation for other trials and other types of cases.

(see, References, p.59)

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[7] #319 (1965).

[8] *Reiff v. Pennsylvania*, 397 F. Supp. 343 (E.D. Pa. 1975).

[9] *Gerneth v. City of Detroit*, 465 F.2d 784 (6th Cir. 1972), *cert. den.*, 409 U.S. 1109 (1973).

[10] See, e.g., *Whitcombe v. County of Yolo*, App. 141 Cal. Rptr. 189 (1977).

[11] A number of these cases are noted in Carrington, op. cit. *supra*, note 6.

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[1] The use of the term "bias" is somewhat different in this context. Roughly, an unbiased environment for taking a deposition is a setting similar to the courtroom. By way of illustration, we know of a case which involved a videotaped deposition of an assault victim. The deposition was taken in a hospital, the plaintiff being swathed in bandages. The defense attorney expressed displeasure with the setting, and the judge agreed. Such an environment would be considered highly biased.

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[1] T. Bethell, "Wheelchair Justice." *The Washington Monthly*, 1976, *8*(4), 51-57.

[2] E. Steinfeld, Interim report. *Barrier-free access to the man-made environment – A review of current literature*. October 9, 1975.

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[10] See also, *Friedman v. County of Cuyahoga, Ohio*. Case No. 895961 (Cuyahoga County Ct. 1972).

[11] "Developments in the Law: Equal Protection," 82 *Harv. L. Rev.* 1065.

[12] R.P. Peters, "Civil Rights and State Non-action." 34 *Notre Dame Lawyer* 303,328 (1959).

[13] See, *Resource Guide to Literature on Barrier-Free Environments*, January 1977, Architectural and Transportation Barriers Compliance Board, Washington, D.C. 20201.

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