INDUCED SUSPICION OF DECEPTION IMPAIRS EYEWITNESSES’ MEMORY OF A SUSPECT

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The number one reason innocent people are wrongly convicted of a crime is inaccurate eyewitness testimony. According to the Innocence Project, nearly 300 convicted people have been exonerated using DNA evidence that was not available at the time of the conviction. With over 75,000 people becoming criminal suspects each year in the United States due to being identified by an eyewitness from a lineup or photo spread, it is crucial for us to understand the factors that contribute to mistakes (Goldstein, Chance, & Schneller, 1989).

Jurors are influenced not only by the eyewitness’s testimony, but also by his or her certainty about the identification decision. At trial witnesses are generally asked a series of questions about the target event along with their lineup identification decision. In 1972 in *Neil v. Biggers* the U.S. Supreme Court set forth five criteria the justices thought jurors should consider in evaluating the accuracy of the witness’s identification of the perpetrator: opportunity of the witness to view the perpetrator at the time of the crime, the witness’s degree of attention during the crime, accuracy of the witness’s description of the criminal prior to the lineup identification, the level of certainty demonstrated by the witness at the time of identification, and the length of time between the crime and the perpetrator identification.

One issue that arises is that expressing a high level of certainty makes witnesses even more compelling to a jury even though they are not necessarily more accurate (Wells & Bradfield, 1998). For example, confirming postidentification feedback increases witnesses’ certainty and affects other testimony-relevant judgments, such as witnesses’ estimates of the favorability of the conditions at the time of the crime and the strength of their memory abilities, both in general and at the time of the lineup (Douglass & Steblay, 2006; Wells & Bradfield, 1998). According to the accessibility hypothesis, postidentification feedback affects witness’s
reports of certainty and other testimony-relevant judgments due to weak internal memory cues (Bradfield, Wells, & Olson, 2002; Quinlivan, Neuschatz, Douglass, Wells, & Wetmore, 2011). The judgments were not encoded at the time of the event and therefore must be inferred based on the witnesses’ memory of the event at the time of questioning. Therefore, if their memory of the event is not accurate, their judgments related to this memory will also not be accurate. If witnesses receive confirming postidentification feedback, according to Douglass and Steblay (2006) the result is similar to a hindsight bias in which participants told the correct answer indicate to a higher degree that they would have chosen the correct answer all along compared to those making the decision without outcome information.

Accurately remembering a perpetrator’s appearance can be difficult for witnesses, even though they are certain they remember it accurately, because their attention may be divided at the time of encoding. Pickel and Staller (2012) found that witnesses who attempted to comprehend a message spoken by a perpetrator with an accent versus no accent less accurately remembered not only the message content but also the appearance of the perpetrator. The researchers attributed this decreased performance to divided attention (trying to comprehend the accented message while encoding information about the perpetrator). The combined cognitive demands of the two tasks exceed the available resources.

Like interpreting an accented message, determining whether a suspect is lying might also divide attention enough to impair subsequent memory performance. In the present study participants watched a video of a target individual delivering a message about his reason for asking to be allowed to enter a school. The participants were instructed to take the perspective of the vice principal of the school who is concerned with the safety of the students and school employees and does not want to let in people who do not have legitimate business at the school.
Therefore the vice principal interviewed all visitors about their purpose for visiting. Participants were asked to decide whether the target was being truthful or lying during an interview concerning his purpose for visiting. Previous research has shown that judging veracity is a cognitively demanding task (Porter, McCabe, Woodworth, & Peace, 2007; Reinhard & Sporer, 2008, 2010; Vrij, Granhag, & Porter, 2010) because the person making the decision has to analyze cues that are present while they are observing or interacting with the target. There are many cues that people believe will help them determine whether or not someone is lying, most of which are nonverbal, including gaze aversion, fidgeting, hand movements, posture shifts, and speech pauses (The Global Deception Team, 2006; Mann, Vrij, & Bull, 2004; Taylor & Hick, 2007; Vrij, Akehurst, & Knight, 2006). To a lesser extent, people use cues within the target’s message, such as story inconsistency (Mann et al., 2004; Vrij et al., 2010). However, research has shown that although people believe these verbal and nonverbal cues to be diagnostic, there are no universal cues that actually reveal deception across individuals and situations (DePaulo, et al., 2003; Vrij, et al., 2010). People accurately detect deception only 45 to 60 % of the time because they examine the wrong cues, they pay too much attention to nonverbal cues, they interpret nervous behaviors as being diagnostic of deception, and they place too much emphasis on rules of thumb instead of considering interpersonal and intrapersonal differences (Vrij, et al., 2006; Vrij, et al., 2010). Whatever the cues participants my study use, the veracity judgment should force them to divide their attention while watching the video, leading to less accurate encoding of the target’s appearance.

Multiple resource theory (Wickens, 2002; 2008) can be applied to the deception detection task to explain the reason participants should have difficulty remembering the message and appearance of the suspect accurately when their attention is divided by looking for deception.
cues. Multiple resource theory was designed to explain dual-task performance and has the following assumptions: Cognitive resources are limited, can be allocated to a task, and can be categorized as belonging to a visual or an auditory level. Two tasks can be accomplished only if there are enough cognitive resources to support both. There is a higher likelihood of successfully completing two tasks at the same time if one task demands resources from the visual level and the other demands resources from the auditory level. However, if either task is too cognitively effortful and uses up all of its resources from the visual or auditory pool, it will then demand resources from a larger common pool, which can also become depleted. Therefore, if the two tasks require too many resources, it may not be possible to complete both successfully. Because judging veracity is cognitively demanding, it may be impossible for participants to encode and remember information about the suspect with a high degree of accuracy.

Judging veracity becomes even more cognitively challenging when the participant is made suspicious that the target is lying. McCornack and Levine (1990) distinguished between generalized communicative suspicion and state suspicion. The former type is an individual personality trait and can be thought of as a person’s baseline level of suspicion in everyday life. In contrast, state suspicion is aroused by the cues that are specific to a given situation that cause an observer to believe the target might be acting deceitfully. For the purposes of the present study I will focus on state suspicion as defined by Kim and Levine (2011): “Suspicion of deception is defined as the degree to which a person is uncertain about the honesty of some specific communication content thereby stimulating a construal of motives in an effort to assess potential deceptive intent” (p. 52). This definition conceptualizes suspicion as including the following elements: People can be more or less suspicious, suspicion involves uncertainty of
whether or not there is in fact deception, and suspicion requires a construct of ulterior motives for why the target is being deceptive.

Previous research has found that inducing suspicion does not make witnesses judge veracity more accurately (Buller, Strzyzewski, & Comstack, 1991; Burgoon, Buller, Ebesu, & Rockwell, 1994; Toris & De Paulo, 1985). Truth bias is a person’s natural tendency to judge a communicative message as truthful. Suspicion has been shown to reduce the truth bias and increase judgments of deception (Hubbell, Mitchell, & Gee, 2001; Stiff, Kim, & Ramesh, 1992). Increased suspicion causes participants to scrutinize the target more carefully for deception cues and engage in more effortful and sophisticated thinking (Buller et al., 1991; Burgoon et al., 1994; Fein, 1996; Forrest, Feldman, & Tyler, 2004).

Pickel, Kulig, and Bauer (in press) investigated whether judging veracity impairs witnesses’ memory for a target and whether suspicion exaggerates this effect. Participants were told either to simply watch a video of a target delivering a message, to judge the veracity of the target, or to judge veracity after being made suspicious about whether the target was being deceitful. Judging veracity made the participant describe the perpetrator’s appearance and message less accurately, and performance was significantly worse in the suspicion condition.

The purpose of the present experiment was to replicate Pickel et al.’s study using a new stimulus video with a new target person, a different message, and a new crime scenario. If the results are replicated it will increase our confidence that the memory impairment from induced suspicion is a real effect. Additionally, I will extend Pickel et al.’s findings by asking witnesses to identify the target in a lineup and to make several testimony-relevant judgments reflecting their certainty in their memory reports. Participants watched a video of a target individual explaining his reason for asking to be allowed to enter a school during school hours. They were
assigned to simply watch the video, to judge the target’s veracity, or to judge veracity with induced suspicion. They were then presented with a questionnaire that asked them to make a veracity judgment, describe the appearance of the suspect, and recall the message. After finishing these sections of the questionnaire, the participants completed a lineup task. Finally, they made several testimony-relevant judgments.

I hypothesized that the control witnesses would have the most accurate memory for the suspect’s appearance and message, followed by the witnesses who were told they would have to judge veracity, and the witnesses who were made suspicious would have the worst memory for the suspect’s appearance and message due to increased scrutiny of the suspect for deception cues and higher cognitive load. The cognitive load is higher in the Judge Veracity group compared to the control group because those in the former group have the added task of looking for deception cues in order to decide if the suspect is telling the truth. The veracity judgment task becomes even more difficult when witnesses are made suspicious because they will put more mental effort into the task. The predicted finding would replicate Pickel et al.’s (in press). I also hypothesized that the testimony-relevant judgments would differ for the Judge Veracity condition compared to the control condition due to the increased scrutiny, and making witnesses suspicious should exaggerate this effect. Participants who were told they would be judging veracity should scrutinize the suspect more carefully compared to controls in order to identify cues indicative of deception. In doing so, they should develop the false sense that they have paid closer attention to the suspect’s appearance and message. Being made suspicious on top of judging veracity should cause a still higher degree of scrutiny and a higher level of certainty in their memory. Lastly, I hypothesized that the participants in the Suspicion condition would show less of a truth bias compared to those in the Judge Veracity condition, in line with previous research (Burgoon et al.,
Method

Participants

One hundred thirty-six participants were recruited from the Introductory Psychology research pool at Ball State University. They ranged in age from 18 to 49 years ($M = 19.07$, $SD = 2.78$). Most participants were female (61%) and white (87%).

Procedure and Materials

The participants were greeted and given an informed consent to read and sign. In groups of up to 10, the participants watched a video of a male actor portraying a visitor to a high school checking in with the vice principal and explaining the purpose of his visit to the school (see Appendix A). The visitor’s head, torso, and arms could be seen, and he was facing the camera. The video also showed the man carrying a bag, which would make it possible for him to conceal and carry away items stolen from the school. The participants were instructed to imagine themselves as the vice principal in the video and that, in keeping with this role, they should attend to the visitor’s message carefully. The participants were also informed that there had recently been multiple thefts of electronic equipment, like iPads, as well as vandalism. Due to lack of funds for security equipment, it had become the vice principal’s job to screen visitors.

Participants randomly assigned to the control group were simply told to watch the video carefully. Those assigned to the Judge Veracity condition were told they would need to decide whether the visitor was being truthful or lying and that they would be asked questions about the video later, so they should watch the video carefully. Participants assigned to the Suspicion condition were also told they would need to decide whether the visitor was being truthful or
lying, but in addition the experimenter pointed out to them that the suspect might be lying.

Suspicion has been manipulated similarly in previous research (Buller et al., 1991; Forrest et al., 2004; McCornack & Levine, 1990; Millar & Millar, 2008; Toris & DePaulo, 1985).

After viewing the video, participants completed a written form with five sections (see Appendix B) in addition to a lineup task. The first section asked for a veracity judgment and a certainty rating for that judgment. As a manipulation check I asked all participants to rate how much effort they put into making the veracity judgment. The second section contained questions asking about the appearance of the suspect in the video. The third section was an open ended question asking witnesses to recall the message. After the third section, the participants were asked to complete a lineup task individually. Participants were called to the back of the room one at a time and the lineup was administered discretely with only the researcher and the participant knowing his or her answer (participants pointed to their choice without verbally saying anything and other participants were not be able to see the participant who was completing the lineup task). The lineup was a simultaneous, target present lineup with five filler photos. It was constructed according to expert recommendations (Technical Working Group, 1999). The fillers were selected to fit the general description of the suspect, and they were without distinguishing marks. The position of the suspect’s photo was randomly distributed within the lineup. The experimenter asked participants to choose the suspect from the video and did not suggest to the witness that he might not be present in the lineup. This strategy is similar to one Wells and Bradfield (1998) used to control the choosing process and assure that all participants would select one of the pictures presented. This procedure was employed to allow for analysis of differences between those choosing the correct and incorrect person. In addition, previous research has shown that individuals who choose the wrong person and those who make no
decision employ different cognitive processes to arrive at their decision (Brewer, Weber, & Semmler, 2007). After finishing the lineup task the participants were instructed to start the fourth section, which asked for testimony-relevant judgments as developed by Wells and Bradfield (1998). The fifth section asked for the participants’ demographic information (age, gender, and ethnicity). After finishing the questionnaire, the participants were debriefed and dismissed.

**Results**

Until noted otherwise, the following dependent variables were analyzed using a simple analysis of variance (ANOVA). When the analysis was found to be significant, a post hoc Student Newman-Keuls procedure was used to determine which conditions differed significantly.

**Manipulation Check**

Witnesses were asked to rate how much effort they put into making the veracity judgment as a manipulation check. The analysis revealed that witnesses who were made suspicious ($M = 6.78, SD = 1.65$) put significantly more effort into the veracity judgment, $F(2, 133) = 5.56, p = .005, \eta^2 = .08$, than those in the control ($M = 5.31, SD = 2.48$) and the Judge Veracity Condition ($M = 5.84, SD = 2.21$). Control and Judge Veracity individuals did not differ significantly. I hypothesized that making witnesses suspicious about the suspect’s level of truthfulness would cause them to scrutinize the target more carefully. This analysis supports that hypothesis by showing that suspicious witnesses put significantly more effort into trying to decide if the suspect was being truthful or deceptive.

**Memory for the Suspect’s Appearance**

Two coders independently used a scoring key to identify the number of correct and incorrect details the witnesses identified on the questionnaire about the suspect’s appearance.
Any detail about the suspect not listed on the key was identified as an incorrect detail. Interrater reliability was calculated based on a sample of 50 questionnaires, and reliability between the raters was found to be high, \( r = .97 \).

In regards to the number of correct details, we found a significant effect of the experimental condition, \( F(2, 133) = 28.36, p < .001, \eta^2 = .43 \), (see Table 1) such that individuals in the control group reported more correct details than those in the Judge Veracity and Suspicion groups, and the Judge Veracity group reported more correct details than those in the Suspicion group.

In regards to the number of incorrect details, a significant effect was also found, \( F(2, 133) = 11.89, p < .001, \eta^2 = .18 \). Witnesses who were made suspicious reported significantly more incorrect details about the suspect’s appearance than those in the other groups, and the Judge Veracity group reported significantly more incorrect details than the control group.

**Memory for the Suspect’s Message**

As with memory for the suspect’s appearance, two independent coders counted the number of correct and incorrect details witnesses identified on the questionnaire about the suspect’s message. Interrater reliability was calculated based on a sample of 50 questionnaires, and reliability was found to be high, \( r = .97 \).

When it comes to the number of correct details remembered by witnesses, a significant effect was found, \( F(2, 133) = 10.64, p < .001, \eta^2 = .16 \) (see Table 1). Witnesses who were made suspicious about the suspect reported significantly fewer correct details than those in the Judge Veracity and control conditions. Witnesses who were told they would have to judge veracity reported fewer correct details than those who passively watched the video.
A significant effect of experimental condition was also found for the number of incorrect details, $F(2, 133) = 15.24, p < .001, \eta^2 = .23$. Individuals in the control condition reported significantly fewer incorrect details for the suspect’s message than those in the Judge Veracity and control conditions. Witnesses in the Judge Veracity condition reported significantly fewer incorrect details than those in the Suspicion condition.

**Veracity Judgment**

To analyze differences across the groups for veracity judgment, a chi-square test of independence was used. There was a difference across the three groups with the control and Judge Veracity groups containing equal percentages of participants (58%) who rated the suspect as deceptive and the Suspicion group containing the highest percentage (80%) of participants who rated the suspect as deceptive, $\chi^2(2, N = 136) = 6.91, p = .03$, Cramer’s $V = .23$ (see Table 2). The witnesses also rated their confidence in the veracity judgment. A one-way ANOVA indicated that there was not a significant difference across conditions ($p = .52$).

**Timing effects**

Because the witnesses viewed the photo lineup individually, it was necessary to make sure their performance on that task and later ones was not affected by the amount of time that elapsed between observing the suspect and viewing the lineup. To assess for timing effects, I correlated lineup accuracy with the order in which the participants completed the lineup task. This correlation was found to be low ($r = -.08, p = .35$). In addition, I correlated each testimony-relevant judgment with the order in which the participant viewed the lineup. All correlations were found to be nonsignificant ($ps \geq .10, r \leq .15$).
Lineup Accuracy

A chi-square test was used to look for differences in lineup accuracy across groups. A difference was found across the three groups with the Suspicion group being the least accurate and the control group being the most accurate, $\chi^2(2, N = 136) = 7.88, p = .02$, Cramer’s $V = .24$. Among individuals in the control group, 80% identified the suspect in the lineup; however, only 52% in the Suspicion group and 67% in the Judge Veracity group correctly identified the man.

An additional chi-square analysis using only the two experimental conditions found that suspicious witnesses did not differ from witnesses in the Judge Veracity condition, $\chi^2(1, N = 91) = 1.98, p = .16$, Cramer’s $V = .15$. Also, when comparing the Judge Veracity and control conditions, it was found that they did not differ significantly, $\chi^2(1, N = 90) = 2.05, p = .15$, Cramer’s $V = .15$.

Testimony Relevant Judgments

All testimony relevant judgments were separately analyzed using a 3 (condition) x 2 (lineup accuracy) factorial ANOVA. When a main effect for condition was found to be significant, a post hoc Student Newman-Keuls procedure was used to determine which conditions differed significantly. Results are displayed in Table 3.

For witnesses’ certainty in the accuracy of the description of the suspect, a main effect of condition was found, $F(2, 130) = 3.11, p = .05, \eta^2 = .05$. As expected, witnesses in the Suspicion condition were significantly more certain they made the correct decision than witnesses in the control condition. No other effects were significant, $ps \geq .21$.

In regards to the witnesses’ certainty that the information they provided about the suspect’s message was accurate, a significant main effect of condition was found, $F(2, 130) = 7.96, p = .001, \eta^2 = .11$. As hypothesized, witnesses in the Suspicion condition reported a
significantly higher level of certainty than those in the Judge Veracity and control conditions. Moreover, those in the Judge Veracity condition reported a significantly higher level of certainty than those in the control condition. No other effects were significant, $ps \geq .32$.

When analyzing the witnesses’ certainty pertaining to their lineup decision, significant main effects of condition, $F(2, 130) = 9.13, p < .001, \eta^2 = .12$, and lineup accuracy, $F(1, 130) = 11.15, p = .001, \eta^2 = .08$, were found. As expected, control participants were significantly less certain they picked the correct person out of the lineup than Suspicious and Judge Veracity witnesses. Witnesses who were made suspicious were significantly more certain they made the correct decision compared to witnesses who were told they would have to judge veracity. In addition, participants who correctly identified the suspect ($M = 6.60, SD = 1.84$) in the lineup rated their certainty as higher than those who incorrectly identified the target ($M = 5.87, SD = 1.70$). The interaction was not significant, $p = .52$.

Concerning the witnesses’ perception of how much time it took for them to make the lineup decision, a significant main effect of lineup accuracy was found, $F(1, 130) = 6.11, p = .02, \eta^2 = .05$, such that individuals who incorrectly identified the suspect ($M = 4.30, SD = 1.84$) in the lineup reported taking more time to make their decision than individuals who correctly identified the suspect ($M = 3.32, SD = 2.13$). No other effects were significant, $ps \geq .76$.

A significant main effect of condition was found pertaining to witnesses’ ratings of how good of a view they had of the suspect, $F(2, 130) = 9.84, p < .001, \eta^2 = .13$. As expected, witnesses in the Suspicion condition rated their view of the suspect as significantly better than witnesses in the Judge Veracity and control conditions, and witnesses in the Judge Veracity condition rated their view as significantly better than witnesses in the control condition. There was also a marginally significant main effect of lineup accuracy, $F(1, 130) = 3.58, p = .06, \eta^2 =$
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.03, such that individuals who correctly identified the suspect ($M = 7.40, SD = 1.59$) in the lineup rated their view of the suspect as slightly better than individuals who incorrectly identified the suspect ($M = 7.17, SD = 1.66$) in the lineup. An interaction between lineup accuracy and condition was not found, $p = .45$.

In regards to participants’ ratings of how well they were able to make out the specific features of the suspect’s face, no significant effects were obtained ($ps \geq .18$).

When analyzing witnesses’ ratings of how much attention they were paying to the suspect’s face during the video, significant main effects of condition, $F(2, 130) = 11.09, p < .001, \eta^2 = .15$, and lineup accuracy, $F(1, 130) = 8.49, p = .004, \eta^2 = .06$, were found. As predicted, individuals in the Suspicion condition reported paying significantly more attention to the suspect’s face than individuals in the Judge Veracity and control conditions, and individuals in the Judge Veracity condition paid significantly more attention to the suspect’s face than the control condition. Also, it was found that participants who correctly identified the suspect ($M = 6.13, SD = 1.80$) in the lineup reported paying more attention to his face than individuals who incorrectly identified the suspect ($M = 5.57, SD = 1.93$). Additionally, a significant interaction was found between lineup accuracy and experimental condition, $F(2, 130) = 3.09, p = .05, \eta^2 = .05$. In the two experimental conditions, the correct witnesses reported paying more attention than the incorrect witnesses, but lineup accuracy had little effect for the control individuals.

No significant effects were obtained ($ps \geq .11$) for witnesses’ ratings of how good of a basis they had for providing information about what the man looked like and said.

Witnesses were asked to rate how easy or difficult it was for them to remember what the suspect looked like and said. No significant effects were obtained, ($ps \geq .08$).
In reference to the witnesses’ willingness to testify in court, a significant main effect of condition was found, $F(2, 130) = 6.79, p = .002, \eta^2 = .10$, with witnesses who were made suspicious before watching the video being more willing to testify than witnesses who were told they would have to judge veracity and those in the control group. No other effects were significant, $ps \geq .34$.

Witnesses were asked to rate how good of a memory they have in general for faces of strangers whom they have encountered on only one prior occasion. No significant effects were obtained, $(ps \geq .56)$.

Lastly, witnesses were asked to rate how clear of an image they had of the suspect in their memory. Analysis revealed a significant main effect of condition, $F(2, 130) = 10.10, p < .001, \eta^2 = .13$, and lineup accuracy, $F(1, 130) = 5.03, p = .03, \eta^2 = .04$. As predicted, witnesses who were made suspicious before viewing the stimulus video rated the image in their memory as significantly more clear than those in the Judge Veracity and control conditions. Witnesses in the control condition rated the image in their mind as the significantly less clear than the Judge Veracity group. Additionally, witnesses who correctly picked the suspect out of the lineup ($M = 6.83, SD = 1.65$) rated the image in their memory as being significantly clearer than those who did not pick the correct person ($M = 6.52, SD = 1.56$). The interaction was not significant, $p = .96$.

**Discussion**

Results were obtained that were consistent with the hypothesis that the control group would have the most accurate memory for the suspect’s appearance and message, followed by the Judge Veracity group and lastly the Suspicion group. In other words, it was found that the act of judging veracity decreases a witness’s memory for the target person’s appearance and
message. This effect can be explained by multiple resource theory which describes dual-task performance (Wickens, 2002; 2008). Multiple resource theory tells us the witnesses’ cognitive resources are limited and they can be allocated to a specific task. As the witnesses allocate resources to the veracity judgment task, they have fewer cognitive resources available to encode the suspect’s appearance and message. Previous research has found similar memory impairment results using other cognitively demanding tasks. Pickel and Staller (2012) found that witnesses who attempted to comprehend a message spoken by a perpetrator with an accent versus no accent less accurately remember the perpetrator’s message and appearance. The researchers attributed this finding to the divided attention caused by the witnesses attempting to comprehend an accented message while encoding the information about the perpetrator.

It was discovered that making witnesses suspicious that the suspect might be lying in addition to telling them they will need to judge veracity exaggerates the memory impairment effect. As the manipulation check showed, witnesses who were made suspicious reported putting significantly more effort into the veracity judgment task. I attribute this to suspicious witnesses scrutinizing the target more carefully for deception cues, which caused their cognitive load to increase. As the witnesses devoted more resources to the veracity judgment, they were unable to encode as many details about the suspect’s appearance and message. These findings replicated Pickel et al.’s (in press) results using a new stimulus video with a new target person, a different message, and a new crime scenario. This increases my confidence that the memory impairment induced by suspicion is a real effect.

Additionally, I extended Pickel, et al.’s (in press) findings by showing that the memory impairment for the suspect’s appearance due to increased scrutiny goes beyond reported details and extends to a photo lineup. Witnesses who passively watched the man in the video correctly
Identified the suspect in the photo lineup 80% of the time; however witnesses who were told they would have to judge veracity correctly identified the suspect in the lineup only 67% of the time. This memory impairment effect was exaggerated when witnesses were made suspicious on top of being told they would have to judge veracity. Witnesses in the suspicion condition correctly identified the man in the lineup only 52% of the time. These results add ecological validity to the memory impairment found by Pickel et al. (in press) by showing the impairment due to increased scrutiny occurs when the task is more similar to what eyewitnesses experience during police investigations. In real investigations, when detectives arrest a suspect it is likely that witnesses will view a lineup. If the witnesses choose the suspect the police arrested, the prosecutors are more likely to move forward and pursue a conviction than if the witnesses choose a foil or make no decision. Therefore, if witnesses have a high cognitive demand while viewing a crime, from being made suspicious or otherwise, there is a higher probability that the wrong person will be convicted or the actual culprit will go free. This is a substantial problem since over 75,000 people become criminal suspects each year in the U.S. due to misidentification by a witness (Goldstein et al., 1989).

I hypothesized that participants in the Suspicion condition would show less of a truth bias compared to those in the Judge Veracity condition. Results were obtained that were consistent with this hypothesis; suspicious witnesses were less likely to decide the suspect was being honest. These results were in line with previous research showing that individuals who are made suspicious prior to a communicative message are less likely to exhibit a truth bias (Burgoon et al., 1994; Kim & Levine, 2011; McCormack & Levine, 1990; Stiff et al., 1992; Toris and DePaulo, 1985).
The current study was the first to look at the effects of suspicion on testimony-relevant judgments. I hypothesized that the Judge Veracity condition would differ on their testimony-relevant judgments compared to the control condition due to increased scrutiny and this difference would be exaggerated for the Suspicion condition. Witnesses were asked to make ratings on 12 testimony-relevant judgments derived from Wells and Bradfield’s (1998) study. I attribute the differences in testimony-relevant judgments to the fact that participants who were told they would be judging veracity scrutinized the target more carefully for deception cues than individuals in the control condition. By doing this the participants in the Judge Veracity condition developed a false sense that they had paid closer attention to the suspect’s appearance and message. Being made suspicious on top of judging veracity would cause an even higher degree of scrutiny, leading to a higher level of certainty in their memory.

The results showed that witnesses who were made suspicious prior to watching the video were more certain they accurately described the suspect than witnesses in the control condition even though they were actually less accurate in remembering the suspect’s description. This is a serious problem because the witnesses who are least accurate are expressing the highest level of confidence, and previous research has shown that a high level of confidence makes a witness compelling to a jury (Wells & Bradfield, 1998). One way to correct this problem would be adding a disclaimer before jurors hear eyewitness testimony that a high degree of certainty is not equivalent to a high degree of accuracy.

Additionally, witnesses in the Judge Veracity condition expressed a higher level of certainty that the information they remembered about the suspect’s message was accurate than witnesses in the control condition. We can attribute this to the higher cognitive load produced by increased scrutiny. When the cognitive load was augmented further by making the witnesses
suspicious that the suspect might be acting deceitfully, the witnesses’ certainty rating became even higher. Witnesses in the Suspicion condition reported the highest level of certainty in their memory for the message, even though they were least accurate in remembering the message. Therefore, it was discovered that a high level of certainty is not equivalent to a high level of accuracy, which is in line with previous research (Douglass & Steblay, 2006; Wells & Bradfield, 1998). As previously stated, this is especially problematic because, as Wells and Bradfield (1998) have found, expressing a high level of certainty is compelling to a jury.

Witnesses were also asked to rate how certain they were that their decision on the photo lineup was accurate. Individuals who passively watched the video were least certain they picked the correct person out of the lineup, even though they were most accurate in the photo lineup task, followed by those who were told they would be judging veracity. Participants who were told they would be judging veracity and were made suspicious reported the highest level of certainty; however they were the least accurate on the lineup task. This is troubling because the witnesses who are likely to be the most persuasive to a jury are actually the least accurate in choosing the correct person out of the lineup. With only 52% accuracy, witnesses who are performing highly cognitively demanding tasks at the time of a crime, but are confident in their identification, could end up putting innocent suspects in prison for a very long time.

Witnesses were asked to rate how willing they are to testify in court. The results showed that witnesses in the Suspicion condition were most willing to testify followed by witnesses in the Judge Veracity condition and lastly those in the control condition. These results imply that although witnesses in the Suspicion condition are least accurate in their memory for the suspect’s appearance and message, they are most willing to testify in court, with the witnesses who are most accurate in their memory (the control witnesses) being the least willing to testify. This is an
even more substantial problem when you add the fact that once they testify, suspicious witnesses are likely to be perceived as accurate due to their high degree of certainty.

Witnesses who were told they would be judging veracity reported having a better view of the suspect, having a clearer image in their head of the suspect, and paying more attention to the suspect’s face than those who were not told they would be judging veracity. All witnesses had the same view of the target. Therefore these results can be attributed to increased scrutiny for deception cues, causing the witnesses to develop a false sense that they paid closer attention to the target. This effect was exaggerated when suspicion was added to judging veracity which can be attributed to suspicious witnesses putting more effort into detecting deception cues, increasing scrutiny, and the false sense they paid close attention to the target. Additionally, witnesses in the suspicion condition were looking for deception cues, like eye gaze aversion, which would cause them to focus on the facial features.

I discovered there was no difference between the control, Judge Veracity, and Suspicion conditions ratings on how well they were able to make out the specific features of the suspect’s face, how good of a basis they had for providing information about what the suspect looked like and said, how easy or difficult it was for them to remember what the suspect looked like and said, and how good of a memory they had in general for faces of strangers whom they had encountered on only one prior occasion. These results are inconsistent with the hypothesis; however, there are some possible explanations to why I did not find the predicted results. My manipulation may be unlikely to affect judgments about general memory processes as opposed to memory for the specific interaction depicted in the video. The question referring to how good of a basis the witnesses have for providing information about what the suspect looked like and said appears to be a little unclear which may have led the witnesses to be confused about what I was
asking. I attempted to keep the questions about testimony-relevant judgments as similar as possible to those used by Wells and Bradfield (1998), and in doing so it seems I may have left the witnesses mystified. Lastly, it seems that the question asking about how well witnesses could make out the features of the suspect’s face may have been too specific. Although it makes sense to look at the face when witnesses first meet someone, witnesses were perhaps looking at all parts of the suspect that were visible to them, not just the face.

Differences were also found between individuals who correctly identified the suspect in the lineup and those who incorrectly identified the suspect. The results indicated that individuals who correctly identified the suspect in the lineup rated their certainty in the lineup decision as higher than individuals who incorrectly identified the suspect. Additionally, witnesses who incorrectly identified the suspect in the lineup reported taking more time to make their decision and reported paying less attention to the suspect’s face than witnesses who correctly identified the suspect. These results are in line with previous research. Bradfield et al. (2002) found that lineup accuracy affected all nine of the testimony-relevant judgments they investigated. They suggested that accuracy influenced recollections such as how much attention the witness was paying to the suspect’s face because the witness was using the degree of similarity between the identified person and their memory of the suspect to make inferences about how much attention they must have been paying to the suspect’s face. For example, witnesses who correctly identified the target would notice a strong resemblance between that person and their memory of the target; therefore they would conclude that they must have had a good view during the witnessed event.

**Future Directions**
In the present study the participants were passive third party observers of the crime scenario. It is important to replicate and extend these findings by having the participants actively interact with the target. Actively interacting with the target may be even more cognitively demanding, causing a more exaggerated memory impairment effect (Vrij et al., 2010). When witnesses are actively engaging with the target they would have to analyze the message and targets actions in order to then respond appropriately. Future research could examine differences across the level of engagement such as passively observing a video versus passively observing a live interaction versus actively engaging with the target.

Future research should also examine other variables, in addition to suspicion, that would cause a similar memory impairment effect and increased certainty in the accuracy of the memory reports. Such variables might be motivation, anxiety, level of threat, etc. If individuals are motivated to do well at the deception detection task they may scrutinize the target more carefully leading to a similar memory impairment effect. Researchers are also encouraged to examine other tasks that may be cognitively demanding enough to cause similar memory impairment and increases in confidence.
References


Induced Suspicion of Deception


*Psychology Science in the Public Interest, 11*, 89-121.


Table 1

*Witnesses' memory for the suspect's appearance and message*

<table>
<thead>
<tr>
<th>Condition</th>
<th>Appearance Details</th>
<th>Message Details</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Correct</td>
<td>Incorrect</td>
<td>Correct</td>
</tr>
<tr>
<td>Control</td>
<td>23.22 (3.69)&lt;sub&gt;a&lt;/sub&gt;</td>
<td>3.62 (1.60)&lt;sub&gt;a&lt;/sub&gt;</td>
<td>37.71 (8.95)&lt;sub&gt;a&lt;/sub&gt;</td>
</tr>
<tr>
<td>Judge Veracity</td>
<td>20.20 (3.01)&lt;sub&gt;b&lt;/sub&gt;</td>
<td>4.82 (1.76)&lt;sub&gt;b&lt;/sub&gt;</td>
<td>33.02 (9.77)&lt;sub&gt;b&lt;/sub&gt;</td>
</tr>
<tr>
<td>Suspicion</td>
<td>17.59 (3.94)&lt;sub&gt;c&lt;/sub&gt;</td>
<td>5.96 (3.13)&lt;sub&gt;c&lt;/sub&gt;</td>
<td>28.93 (8.50)&lt;sub&gt;c&lt;/sub&gt;</td>
</tr>
</tbody>
</table>

For each variable, means are reported with standard deviations in parentheses. Means in the same column that do not share the same alphabetical subscript differ significantly, $p < .05$. 
Table 2

**Witnesses' veracity judgments and confidence**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Judgment</th>
<th>Confidence</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
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<td>6.24 (1.68)&lt;sub&gt;a&lt;/sub&gt;</td>
<td>45</td>
</tr>
<tr>
<td>Judge Veracity</td>
<td>0.58&lt;sub&gt;a&lt;/sub&gt;</td>
<td>6.13 (1.62)&lt;sub&gt;a&lt;/sub&gt;</td>
<td>45</td>
</tr>
<tr>
<td>Suspicion</td>
<td>.80&lt;sub&gt;b&lt;/sub&gt;</td>
<td>6.52 (1.67)&lt;sub&gt;a&lt;/sub&gt;</td>
<td>46</td>
</tr>
</tbody>
</table>

For veracity judgments, the table reports the proportion of individuals who judged the visitor as deceptive. For confidence, means are reported with standard deviations in parentheses. Confidence ratings were made on a 10 point scale with higher numbers representing more confidence. Values in the same column that do not share the same alphabetical subscript differ significantly, $p < .05$. 
Table 3

<table>
<thead>
<tr>
<th>Testimony Relevant Judgments</th>
<th>Condition</th>
<th>Lineup</th>
<th>VJ Certainty</th>
<th>MessageCert</th>
<th>LineupCert</th>
<th>Time</th>
<th>View</th>
<th>Face</th>
<th>Attend</th>
<th>Basis</th>
<th>Easy</th>
<th>Testify</th>
<th>Memory</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Wrong</td>
<td>6.78 (0.67)</td>
<td>7.67 (1.41)</td>
<td>5.11 (0.60)</td>
<td>4.11 (1.69)</td>
<td>6.44 (1.33)</td>
<td>6.78 (1.20)</td>
<td>5.00 (0.71)</td>
<td>6.11 (1.45)</td>
<td>5.67 (1.73)</td>
<td>5.56 (1.74)</td>
<td>5.89 (1.83)</td>
<td>5.44 (1.88)</td>
<td></td>
</tr>
<tr>
<td>Correct</td>
<td></td>
<td>6.25 (1.52)</td>
<td>6.97 (1.86)</td>
<td>5.72 (1.92)</td>
<td>3.33 (2.00)</td>
<td>6.64 (1.55)</td>
<td>6.44 (1.28)</td>
<td>5.17 (1.36)</td>
<td>6.72 (1.49)</td>
<td>6.36 (1.78)</td>
<td>5.94 (1.60)</td>
<td>6.17 (2.27)</td>
<td>6.19 (1.51)</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>6.36 (1.40)</td>
<td>7.11 (1.79)</td>
<td>5.60 (1.75)</td>
<td>3.49 (1.95)</td>
<td>6.60 (1.50)</td>
<td>6.51 (1.25)</td>
<td>5.13 (1.25)</td>
<td>6.60 (1.48)</td>
<td>6.22 (1.77)</td>
<td>5.87 (1.62)</td>
<td>6.11 (2.18)</td>
<td>6.04 (1.60)</td>
<td></td>
</tr>
<tr>
<td>Judge Veracity</td>
<td>Wrong</td>
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<td>7.73 (1.49)</td>
<td>5.33 (1.68)</td>
<td>4.60 (1.81)</td>
<td>6.60 (1.68)</td>
<td>5.40 (2.03)</td>
<td>4.53 (2.10)</td>
<td>5.87 (2.00)</td>
<td>5.53 (2.03)</td>
<td>6.00 (1.73)</td>
<td>6.20 (1.74)</td>
<td>6.33 (1.18)</td>
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</tr>
<tr>
<td>Correct</td>
<td></td>
<td>6.90 (1.32)</td>
<td>7.80 (1.38)</td>
<td>6.87 (1.43)</td>
<td>3.23 (1.96)</td>
<td>7.63 (1.50)</td>
<td>6.30 (1.93)</td>
<td>6.53 (1.91)</td>
<td>6.33 (1.37)</td>
<td>6.07 (1.76)</td>
<td>6.50 (1.48)</td>
<td>6.10 (2.14)</td>
<td>6.87 (1.50)</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td>6.89 (1.39)</td>
<td>7.78 (1.40)</td>
<td>6.36 (1.67)</td>
<td>3.69 (2.00)</td>
<td>7.29 (1.62)</td>
<td>6.00 (1.99)</td>
<td>5.87 (2.17)</td>
<td>6.18 (1.60)</td>
<td>5.89 (1.85)</td>
<td>6.33 (1.57)</td>
<td>6.13 (2.00)</td>
<td>6.69 (1.41)</td>
<td></td>
</tr>
<tr>
<td>Suspicion</td>
<td>Wrong</td>
<td>7.00 (1.20)</td>
<td>8.77 (0.97)</td>
<td>6.55 (1.79)</td>
<td>4.18 (1.97)</td>
<td>7.86 (1.55)</td>
<td>5.68 (1.76)</td>
<td>6.50 (1.74)</td>
<td>6.23 (1.63)</td>
<td>5.73 (2.00)</td>
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<td>7.09 (1.44)</td>
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<td>Correct</td>
<td></td>
<td>7.58 (1.18)</td>
<td>8.54 (1.41)</td>
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<td>3.42 (2.57)</td>
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<td>6.37 (1.84)</td>
<td>7.08 (1.59)</td>
<td>6.62 (1.77)</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td>7.30 (1.21)</td>
<td>8.65 (1.22)</td>
<td>7.09 (1.79)</td>
<td>3.78 (2.31)</td>
<td>8.07 (1.41)</td>
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<td>7.15 (1.80)</td>
<td>6.54 (2.27)</td>
<td>7.43 (1.57)</td>
<td></td>
</tr>
</tbody>
</table>

For each testimony-relevant judgment, means are reported with standard deviations in parentheses. Means in the same column and in the Total row that do not share the same alphabetical subscript differ significantly, p < .05. Ratings were made on a 10-point scale. For all variables except time, higher ratings reflect higher levels of the variable. For time, higher ratings reflect longer estimates of the time needed to make a lineup decision. (VJ Certainty = Certainty in the Veracity Judgement; MessageCert = Certainty in the memory for the message, LineupCert = Certainty in the lineup decision)
APPENDIX A

Instructions to participants and video script

Instructions

Experimenter reads this to subjects during testing sessions:

“We’re ready to begin now. We will be finished in 60 minutes or less. I’m going to play a video for you. I want you to imagine that you are the vice principal at a school called Stony Creek High School. You and the other administrators want to make sure everyone at the school stays safe. Although there has never been a violent incident, there have been a few thefts of computer equipment, including iPads, as well as some cases of vandalism. The school system can’t afford surveillance cameras, but recently the administrators created a procedure for screening visitors to the building in an effort to keep unauthorized individuals out and to protect students, teachers, and school property. Visitors must enter through the main door; none of the other doors will open from the outside. Once inside, visitors must check in with you, the vice principal, and explain the purpose of their visit. They must also sign the “visitor registry,” although they don’t have to show ID. They can leave the building through any door when they’ve finished with their visit.

One morning while you are working in the front office on a school day, a man enters through the main door. As the vice principal, you are responsible for questioning him about why he’s here. The video you will watch shows the responses he gave when questioned.”

For control participants:

“Please watch the video carefully.”

For participants in veracity judgment condition:
“You will need to decide whether he is being truthful or lying about the reason he wants to enter the school, and you will answer questions about your decision later. Please watch the video carefully.”

For participants in suspicion condition:

“You will need to decide whether he is being truthful or lying about the reason he wants to enter the school, and you will answer questions about your decision later. Keep in mind that he might not have legitimate business at the school, and therefore he might be lying. Please watch the video carefully.”
**Video Script**

The target says this:

“I’m here to see the art teacher, Ms. Tolbert. She’s expecting me. My cousin knows her and said she might assign a project where the kids will make things out of cardboard boxes. My family owns a store, and we have lots of boxes left over from the shipments we get, so we can donate them. I know the art room is that way [points], so I’ll go down there and find Ms. Tolbert and ask her what size of boxes she wants, and when. I’ll probably want to put that info in my calendar. It should take just a few minutes, and then I’ll leave through the door by the back parking lot.”

[The target could be shown carrying a messenger bag or backpack, so it looks like he would have a way of carrying off iPads if he was there to steal.]
APPENDIX B

Questionnaire

Please answer each question on this form as accurately as possible. After you’ve finished with a section, move on to the next one, and don’t go back and change your answers.

Section 1

1. In the video, the man explained why he wanted to visit the school. Do you believe he was telling the truth? Please choose the response below that best fits your belief.

_____ he was being truthful

_____ he was lying

2. How certain are you that your judgment about the man’s truthfulness is accurate? Please circle one number:

0              1             2              3              4              5              6
7             8          9
10

↑

No confidence          Complete confidence
at all

3. Some tasks can be done without much effort, but others take a lot of effort. How much effort did you put into making the decision in Question 1 above? Please circle one number:

0              1             2              3              4              5              6
7             8          9
10

↑

Very low effort          Very high effort
Section 2

Please think about the man in the video you just watched. Answer the questions below based on what you remember...please don’t write down guesses. If some of the details asked about were not visible, please write “not visible.”

1. Think about the top the man was wearing.

   A. What kind of a top was it? If he was wearing more than one top, please indicate that.
      _____ shirt _____sweater _____jacket _____sweatshirt _____ other; describe:

   B. What color(s) was the man’s top?

   C. Was the top long-sleeved or short-sleeved?

   D. How would you describe the style? (For example, T shirt, ski jacket, football jersey, etc.)

   E. Were there any other visible details, such as pockets, buttons, a zipper, rips, lettering or graphics, some type of collar, a type of fabric that you can identify, etc.?

2. Think about the pants or shorts the man was wearing.

   A. Were they pants or shorts? _____pants _____shorts
B. Can you describe more specifically what kind they were? For example, if you said they were pants, were they jeans, track pants, dress pants, khakis, or some other kind?

C. What color(s) were the man’s pants or shorts?

D. Were there any other visible details, such as pockets, buttons, rips, lettering, etc.?

3. Was the man wearing glasses? _____yes _____no If you said yes, please describe them (color and shape of frames; were they sunglasses or regular eyeglasses?):

4. Was the man wearing a hat or any kind of headgear? _____yes _____no If you said yes, please describe it. What color was it? What kind (e.g., cowboy hat)?

5. A. What kind of footwear was the man wearing?

_____athletic shoes/tennis shoes _____boots _____casual shoes _____dress shoes

_____sandals _____other; describe:

B. Refer to your answer above. What color was the footwear? Also can you describe more specifically what kind of footwear he wore? For example, if you said boots, were they hiking boots, cowboy boots, or some other kind? Did they lace up or slip on? Was a brand name visible?
6. Was the man wearing gloves? _____no _____yes (if yes, what color?)

7. Was the man wearing any jewelry, such as a wristwatch, earring, a necklace, a bracelet, rings, or a nose ring? If you say yes, please describe the color, type, and any other details you can recall.

8. What was the man’s ethnicity?
   _____white _____black _____Hispanic/Latino _____Asian _____Middle Eastern
   _____other; describe

9. About how tall was he? Please write down a specific height in feet and inches.

10. How would you describe his body type?
    _____thin _____medium build _____overweight _____muscular

11. What color was his hair?
    _____light brown _____dark brown _____red _____black _____gray _____blonde
    _____other; describe:

12. How long was his hair?
    _____shaved _____short (above the ears and collar) _____about collar-length
    _____long (over the shoulders)
13. Exactly how old you think he is (please write down a specific number of years)?

__________ years old

14. Did the man have any tattoos that you could see? _____yes _____no
If yes, please describe where they were on his body and what they looked like:

15. Did the man have any scars or birthmarks that you could see? _____yes _____no
If yes, please describe where they were on his body and what they looked like:

16. Did the man have any facial hair? _____yes _____no
If yes, please describe what it looked like:

Section 3

What did the man in the video say? Please write down what he said in as much detail as possible so you can show that you remember his statement.

When you’re done with this section, please wait quietly. The next part of the experiment will begin shortly. Thank you!
Section 4

For each question below, please circle one number.

1. Earlier in this experiment you answered questions about what the man in the video looked like. When you wrote your answers, how certain were you that the information you gave was accurate?

0  1  2  3  4  5  6  7  8  9  10

↑  ↑

Not at all certain  Totally certain

2. Earlier in this experiment you wrote down what the man said. When you wrote your answer, how certain were you that the information you gave was accurate?

0  1  2  3  4  5  6  7  8  9  10

↑  ↑

Not at all certain  Totally certain

3. Earlier in this experiment you looked at a photo lineup to see if you could identify the man in the video. When you made your lineup decision, how certain were you that your decision was accurate?

0  1  2  3  4  5  6  7  8  9  10

↑  ↑

Not at all certain  Totally certain
4. After you were first shown the lineup, how long do you estimate it took you to make a decision?

0 1 2 3 4 5 6 7 8 9 10
↑
Almost no time

A very long time

5. How good of a view did you get of the man in the video?

0 1 2 3 4 5 6 7 8 9 10
↑
Very poor

Very good

6. How well were you able to make out the specific features of the man’s face?

0 1 2 3 4 5 6 7 8 9 10
↑
Not at all

Very well

7. How much attention were you paying to the man’s face while watching the video?

0 1 2 3 4 5 6 7 8 9 10
↑
None

My total attention
8. To what extent do you feel that you had a good basis (enough information) to provide information about what the man looked like and said?

0  1  2  3  4  5  6  7  8  9  10 ↑  ↑

No basis  A very good basis
at all

9. How easy or difficult was it for you to remember what the man looked like and said?

0  1  2  3  4  5  6  7  8  9  10 ↑  ↑

Extremely difficult  Extremely easy

10. On the basis of your memory of the man, how willing are you to testify in court that the information you provided about him is accurate?

0  1  2  3  4  5  6  7  8  9  10 ↑  ↑

Not at all willing  Totally willing

11. Generally, how good is your memory for the faces of strangers you have encountered on only one prior occasion?

0  1  2  3  4  5  6  7  8  9  10 ↑  ↑

Very poor  Excellent
12. How clear is the image you have in your memory of the man you saw in the video?

Not at all clear  

Very clear

Section 5

Please provide some general information about yourself.

A. How old are you?

B. Are you male or female?  ___male  ___female

C. What is your race?  For example, are you white, black/African-American, Latino/Latina, Asian-American, biracial,...?

You are finished with the questionnaire. Please wait quietly. Thank you!