

6-2016

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### Recommended Citation

De la Cruz, David (2016) "The Difference between Detecting Emotional and Non-Emotional Deception," *Psychology Research Methods Journal*: Vol. 1 : Iss. 19 , Article 14.

Available at: [https://digitalcommons.lindenwood.edu/psych\\_journals/vol1/iss19/14](https://digitalcommons.lindenwood.edu/psych_journals/vol1/iss19/14)

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## **The Difference between Detecting Emotional and Non-Emotional Deception**

*David De la Cruz<sup>13</sup>*

From small white lies to great deceptive schemes, lies exist in every part of the society. Being surrounded by lies, people constantly judge the veracity of other individuals' statements. From parents judging if their kids are being deceptive, to trained professionals trying to detect deception, people can unconsciously use their intuition to catch liars (Brinke, Stimson, & Carney, 2014; Reinhard, Greifeneder, & Scharmach, 2013). Even if trained professionals learn a variety of methods to consciously detect deception, unconscious intuition is always a factor that is present in lie detection because they are also humans. People can unconsciously discover deception through their ability to feel and see others' emotions (Vrij, Granhag, & Porter, 2010). However, while unconscious intuition allows individuals to detect some lies, it also misleads them to misjudge other people's statements because of all the emotional feedback received from other people. I hypothesize that people will be better at detecting deception if there is a lower display of emotions that could distract the lie detector.

In any event where there is interaction between two or more individuals, the ability to detect deception is necessary. Lie detection is important in any profession because being

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deceitful in the professional world could lead to losses. However, one of the most important situations where lie detection is necessary is in the criminal justice system (Frank & Feeley, 2003). In all the areas of the criminal justice system, the veracity of people's statements is constantly doubted. Criminals most of the time lie about their deviant actions, their reasons, and even their own mental sanity. It is up to the police investigators, juries, judges, and many criminal justice professionals to be able to detect deception and separate it from truthful statements, and it is a heavy burden because their decision could free criminals into society or convict innocent citizens.

Even if the importance of detecting deception is important in the criminal justice system, according to research, lie detection experts' ability to detect deception is not better than the average (57%) (Bond & DePaulo, 2006; Ekman & O'Sullivan, 1991). Lie detection experts include, but are not only, law enforcement personnel, judges, mental health professionals, polygraph examiners, and many others. However, only a few trained personnel have an ability above average to detect lies (73%), which is not highly accurate (O'Sullivan, Frank, Hurley, & Tiwana, 2009). However, it is hypothesized that trained professionals perform only above chance because the amount of feedback received when attempting to detect deception disrupts their ability. Therefore, participants in this research study should be better at detecting deception if they have a better knowledge in lie detection, especially if they are detecting videos where there is a lower display of emotions.

In order to detect deception, people need to understand the different factors that influence liars, truth tellers, and lie detectors. A lie detector should also understand the various factors of deceit detection techniques and lies. Deception has various definitions depending on the setting it is used in. However, in a broad definition, deception or lying is an intentional attempt, without warning, to create in another individual a belief which the communicator knows to be untruthful (Vrij et al., 2010). Humans are able to deceive because the area of the brain that controls verbal communication is located in the forebrain, which is the part of the brain that humans can consciously control (Navarro & Karlins, 2008). People lie for different reasons, but not all people have the same ability to deceive others. There are different individual characteristics that good liars possess. The best liars are people whose: natural behavior dismantles suspicion; who do not find it cognitively hard to lie; who do not experience negative emotions such as fear or guilt while lying; who are good actors and display an honest behavior; whose attractiveness may lead to an interference with the belief of their dishonesty; and /or those who are “good psychologists,” meaning they have a good insight into others’ thought process and emotions (Vrij et al., 2010).

The ease with which individuals are able to detect deception depends on the other person’s ability to lie, but even among the best liars there are still differences in their behavior compared to truth tellers. However, any behavioral differences between truth tellers and liars are typically small, which produces difficulties for lie detectors (DePaulo et al., 2003; Frank, &

Feeley, 2003). Lie detectors need the motivation to differentiate untruthful from truthful statements. As a common problem, lies sometimes are undetected because people do not attempt to uncover the truth, which is known as the ostrich effect (Frank & Feeley, 2003; Vrij et al, 2010). People often believe the untruthful statement they are told because it is more tolerable, preferred, and/or easier to accept than the possibility that they were lied to (e.g. in a relationship people may prefer to believe that their partner is not seeing other people, even if they suppose otherwise). Lie detectors need to possess the motivation to discover the truth, even if the truth is not what they expect.

Even if people are motivated to discover lies, they are likely to fail. When judging the veracity of a statement, people are truth bias and are more inclined to belief others as being honest. Levine, Park, and McCornack (1999) discover this veracity effect after analyzing lie detection research and realizing observers tend to get truths corrected more than lies. Due to our truth bias, we are likely to see liars as being honest. Another advantage for liars is that lie detectors do not receive adequate feedback after deciding whether others are being truthful or deceptive (Vrij et al., 2010). Therefore, lie detectors cannot be certain if their lie detection method is successful in most cases. On the other hand, liars receive feedback after successfully deceiving others; if their lie was successful, other people will not doubt them.

Research have shown that detecting deception is difficult (Bond & DePaulo, 2006; Vrij et al., 2010), but studies have also shown that it is not impossible (Ekman & O'Sullivan, 1991;

Navarro & Karlins, 2008; O'Sullivan, et al., 2009). Liars display different emotional and behavioral cues than truth tellers. However, there is not a cue for deception and some cues are incorrectly perceived as being deceptive, even if those signals are not correlated with deception (DePaulo et al., 2003). For example, most people in different studies categorized gaze aversion, increased fidgeting, anxiety, and even nervousness as being signs of deception. However, none of those signs are reliable cues of deception. Considering how people's knowledge about deception cues is not reliable, is not surprising to find average accuracy in lie detection tests. The belief that some unreliable cues can predict deception could lead to Othello errors, which is a common error that occurs when lie detectors too readily interpret some signs as deception (Vrij et al., 2010).

The most common Othello error committed by lie detectors is the failure to consider that truthful individuals can also display nervousness like liars (Vrij et al., 2010). Lie detectors could also assume that liars are less likely to exhibit emotions since their statement is not truthful. However, both truthful and untruthful individuals display emotions when answering for a question that could elicit emotion (e.g. both may experience sadness when asked about the death of their father; the only difference is that liars could display sadness because they are consciously or unconsciously thinking about the death of another person or the idea of their father's death).

There are various reasons liars could also experience the same emotions as truth tellers.

The most likely one is that lies are usually embedded in truths (Vrij et al., 2010). Most untruthful

statements are based on and/or inspired by the truth with minor differences in the details. Lies embedded in truth are used more than blatant lies because of the lower cognitive load or necessity to create all of the different details of a lie (DePaulo et al., 1997; Vrij et al., 2010). Even if people only base their deception on a small portion of a truthful story, the memory or thought of the truth could elicit the same emotions in the lie.

Considering the challenge of catching liars, there have been many different approaches created to detect deception. The most common methods involve the use of verbal and nonverbal communication cues simultaneously (DePaulo et al., 2003). Reading an individual's body language can be a great source of information to determine if someone is lying or being truthful. Humans cannot control the nonverbal signals they display because the part of the brain that controls those signals, the limbic system, reacts instantly and subconsciously (Navarro & Karlins, 2008). Reading another individual's body language is not an easy task for a variety of reasons. The main reason is individual differences, each person is different from one another; meaning their baseline, nonverbal cues, and reactions are different (e.g. people can react differently to the same stimulus).

Humans show a variety of different cues when they are lying, mainly negative signs, like discomfort or guilt, but there is no a specific body language signal that characterizes lying (DePaulo et al., 2003; Navarro & Karlins, 2008; Vrij et al., 2010); and truth tellers could also display the same signs. According to Navarro and Karlins (2008), the best approach to catch liars

is to create a baseline before attempting to detect his/her lies, and once the baseline is created to notice any sudden changes not previously present. By seeing and distinguishing nonverbal cues, and at the same time considering other factors, like the setting, the baseline nonverbal behavior, and others, the likelihood of distinguishing lies from truths should increase. However, emotions are still present in both liars and truth tellers, which could consciously or unconsciously disrupt lie detection (e.g. seeing that a person is sad when talking about a death pet does not necessarily implies that the statement is truth).

The focus of lie detection has been in the emotions experienced and displayed by truthful and untruthful individuals. However, this approach has limitations because, as previously described, both truth tellers and liars display the same emotions (DePaulo et al., 2003). The misreading of any emotion could lead to Othello errors that could influence the entire perception of the veracity of the statement. Othello errors could lead to confirmation bias, which is the tendency to look for information that confirm existing beliefs, and to another phenomenon called belief perseverance, which is the disregard of new evidence because it disconfirms a false belief (Vrij et al., 2010). A single incorrectly perceived emotion could disrupt any future information lie detectors obtain from other people, which is why having less emotional and behavioral signals presented to lie detectors should increase their accuracy in detecting deception.

Another approach to detect lies is the premise of cognitive load. The argument of cognitive load refers to the notion that being deceitful is mentally more demanding than being



truthful (Ekman & O'Sullivan, 1991). When people lie, they use more cognitive process, which causes deceivers to lose focus easier while conducting various tasks. By making liars perform various tasks, their ability to create deception will decrease and eventually they will commit a mistake. There are also other methods for lie detection that are learned, such as the statement validity assessment. This method to detect deception is a criteria-based content approach that analyzes a list of 19 criteria argued to be present more in truthful statements than in untruthful ones (Vrij, 2005). However, learning different methods to detect deception is difficult and time consuming, and it requires motivation from the learner to master (Vrij et al., 2010); which is why verbal and nonverbal cues, emotions, and intuitions are mostly used by people to detect lies, even if there are various factors that interfere with these lie detection techniques.

An intuitive response could prevent lie detectors from consciously processing other feedback presented by other, and lower their chances of correctly detecting deception. When humans interact with others, many different conscious and unconscious brain processes occur simultaneously; one of these processes is our ability to empathize with others (Decety & Jackson, 2004). People can perceive how others feel on an unconscious level through nonverbal signals, and that feeling can give people the ability to feel deception, or notice a difference between others' verbal statements and nonverbal cues. Intuition makes people able to detect some lies without training, but it also makes trained professionals unable to accurately distinguish some statements (Albrechtsen, Meissner & Susa, 2009). People who are trained to

detect deception apply their knowledge in body language, cognitive load, and other strategies to detect lies. However, since they are still humans, their intuition can easily affect their judgment. Intuition for lie detection depends on the ability to empathize with others, and empathy depends, in part, on the emotional nonverbal signals others display (Albrechtsen et al., 2009; Decety & Jackson, 2004).

Research on how the unconscious affects lie detection varies. According to a research study conducted by Reinhard et al. (2013), individuals using their unconscious processes were better at detecting lies than individuals who use their conscious processes. According to the researchers, humans have an innate ability to detect lies; however, conscious thinking and focus on unreliable cues disrupt unconscious lie detection (Reinhard et al., 2013). Brinke et al. (2014) also found in their two different experiments that people's ability to detect liars is better when done unconsciously. However, this claim was later debated by Franz and Luxburg (2015), who argued that a significant difference does not imply accurate classification. Albrechtsen et al. (2009) also studied how intuition, an unconscious process, is more accurate than deliberative process. Even if in some studies there were findings suggesting people's unconscious ability to detect lies is better than their conscious lie detection ability, their unconscious ability was not highly accurate. People can unconsciously feel others' emotions, which could allow them to detect deception, but perhaps the same unconscious process is disrupting a more logically based method to detect lies, because both truth tellers and liars can experience the same emotions.

There are various methods used to detect deception. However, unconscious and uncontrollable factors, such as emotions, empathy, and intuition are always present when interacting with others, therefore affecting people's ability to detect lies. By perceiving more emotional feedback, unconscious factors could make individuals to wrongly categorize the veracity of others. People can detect other individuals' emotions through their empathy, which gives them an intuitive response of how others are feeling. The ability to know other people's emotions is an advantage as well as a disadvantage in lie detection. Every emotion is displayed in both liars and truth tellers. Therefore it is hypothesize that since the overflow of emotions prevents lie detectors from making an accurate judgment because categorizing each emotion as truthful or deceitful is not possible, participants will be better at detecting other's veracity if there is a lower emotional feedback. If there is a lower display of emotions, lie detectors could concentrate in other elements displayed by others, such as voice tone, body language, and story content.

## **Method**

### **Participants**

A total of 118 participants were recruited for this study. Of these participants, 28% were male and 72% were female. The mean age of the participants was 21.2 years ( $SD = 7.8$  years).

Participants were recruited through Facebook, an online social site and the Lindenwood

Participant Pool (LPP), were Lindenwood students can sign for studies through Sona Systems.

The ethnicity of the participants was 69% Caucasian, 7.5% African American, 8.9% Asian, 10.4% Hispanic/ Latino, and 4.2% other. There were not any participants excluded from this study. All participants were 18 years or older and had at least a basic English level that allowed them to fully understand the study and the videos displayed. Individuals who participated in this study gained knowledge about body language and lie detection. Participants recruited through the LPP also received extra credit for their class.

### **Materials**

**Videos.** The videos used in this study were created by the principal investigator to guarantee more control over the subjects and location in the videos, the questions asked, and the length of each video (see Appendix A). The emotional and non-emotional questions were created and surveyed by the principal investigator and faculty members to optimize both categories (see Appendix B). The questions that were either classify as making the models have a low or non-emotional response or a high emotional response were used. There were 32 videos involved in this study. A total of eight models were recorded both responding falsely and truthfully to the investigator questions. The subjects were proportionally from four different ethnic groups (Caucasian, African American, Asian, and Hispanic/Latino). All models responded twice to emotional questions which had the goal of making the models display emotions regardless of their answer (truth or lie); and twice to non-emotional questions which had the goal to create the less emotional responses as possible, regardless of the models answer (truth or lie).

To obtain the most natural response possible, subjects were not informed of the questions before they were recorded. The videos were recorded with specialized cameras in order to demonstrate the subjects' body signals and micro expressions. Each video lasted from 20 s to 35 s. Subjects were instructed to respond to each question with an answer of at least 10 s; this instruction was required to avoid short answers, which would lower the feedback that participants could observe before assessing if the subject in the video is lying or telling the truth. In order to avoid any lies in their "truth" answers due to embarrassment, the subjects were not forced to answer any question that made them uncomfortable.

**Survey.** A consent statement informing the participants about the research they were going to participate in was used (see Appendix C). The Toronto Empathy Questionnaire (Spreng, McKinnon, Mar & Levine, 2009) was used to measure participants' empathy level. The Toronto Empathy Questionnaire consists of 16 questions used to measure empathy, and has demonstrate great validity in demonstrating people's empathy (Spreng et al., 2009). The principal investigator also created 10 multiple choice questions assessing the participants' knowledge of lie detection and their misconceptions about it. Finally, five demographic questions were added to understand the culture, ethnicity, age, sex, and backgrounds of the participants. A statement thanking individuals for their participation appeared at the end of the survey, as well as each participant's lie detection score was also made.

## Procedure

The study was conducted online and was approximately 10 to 15 min long. Participants were first required to read and agree a consent form. Participants then responded to the Toronto Empathy Questionnaire (Spreng et al., 2009) and completed a quick survey about their current knowledge of lie detection. After completing both questionnaires, participants watched a total of eight videos previously created by the principal investigator.

Participants were required to analyze the videos and answer whether they believe the models in the video were being deceptive or honest. To avoid any possible fatigue or practice effects, the order of the videos was randomized. Each participant saw a different model in each video. From the eight videos the participant watched, two displayed a model answering an emotional question with the truth; two displayed a subject answering an emotional question with a lie; two displayed a subject answering a non-emotional question with the truth; and two videos displayed a subject answering a non-emotional question with a lie. After watching each video, participants used a scale to answer how much intuition or observational skills they believed they used to detect the veracity of the video. Participants completed five demographic questions after watching the eight videos. After completing the study participants received their lie detection score and a thank you statement.

## Results

Participants' average lie detection score was 4.45 over 8, which is a 55.62% accuracy rate. This result is expected in lie detection studies, because people's ability to detect lies is only slightly above chance. However, this study was looking at the differences between detecting emotional and non-emotional lies. Therefore, participants' lie detection score was divided in the emotional and non-emotional categories. In order to test if people are better at detecting deception if there is a lower display of emotional feedback, a paired sample *t*-test was conducted comparing participants' lie detection score on the emotional and non-emotional videos. The results of the paired *t*-test revealed that people were better at detecting non-emotional lies ( $M = 2.37$ ,  $SD = 0.891$ ) than emotional lies ( $M = 2.07$ ,  $SD = 0.967$ ),  $t(117) = 2.032$ ,  $p = .042$ .

To test whether the other two hypotheses of this study were supported, a Pearson's *r* correlational analysis was conducted between empathy, lie detection knowledge, and non-emotional and emotional accuracy score. The second hypothesis was that participants' empathy score will be negatively related to their ability to detect emotional lies. It was hypothesized that participants will be more likely to emphaticize with models regardless of the veracity of the statement if there are more emotions display, and therefore, empathy will affect their judgment. However, this hypothesis was not supported,  $r(115) = -0.16$ ,  $p < 0.873$ . Participants with higher empathy were not worse at detecting the veracity of emotional videos. Further analysis showed

that empathy was not correlated with the ability to detect non-emotional videos,  $r(115) = 0.078$ ,  $p < 0.429$ , or with lie detection accuracy,  $r(115) = -0.045$ ,  $p < 0.646$ .

The third hypothesis was that there will be a positive correlation between participants' lie detection knowledge score and their ability to detect the veracity of the videos, especially the non-emotional video category. This was hypothesized based on previous research findings that participants with more knowledge in lie detection are slightly better at detecting deception. Since in this study, participants with more knowledge could concentrate only on known signs of deception instead of emotions, a positive correlation between non-emotional videos and deception detection knowledge was expected. However, this hypothesis was not supported,  $r(115) = -0.012$ ,  $p < 0.899$ .

### **Discussion**

In this study empathy and lie detection knowledge did not have any significant correlation with emotional and non-emotional videos. However, this study supported the hypothesis that it is easier to detect deception if there is a lower display of emotional feedback. More research in this idea could help to further support this hypothesis and create methods to help law enforcement agents and other individuals improve their lie detection accuracy. For example, a lie detection method where only non-emotional questions are asked in order to create a baseline could be implemented in police interrogations to increase their possibility of detecting deception.



Since this was an online study, some variables in lie detection could not be controlled. The time spent by participants to judge the veracity of the videos could have an impact on detecting emotional and non-emotional lies. A fast, intuitive, unconscious response could be a sign that the participant used emotions to detect the veracity of the videos. Because of it, is almost impossible to avoid others from showing emotions, even with non-emotional questions, there is a chance participants still relied on emotions to detect deception. To control for this variable, in this study participants were required to select how much intuition they believed they used to detect the veracity of the video, and how much truthful or untruthful cues they believed they noticed in the video. However, future studies should be timed to measure the time participants spend judging each video.

Whether participants unconsciously or consciously detect deception, there was a significant difference between detecting the veracity of emotional and non-emotional questions. For future studies, high stake emotional and non-emotional lies should be used because those types of lies are more likely to appear in society. A bigger and more diverse sample of participants should be used. Even though this study had 118 participants, the ethnicity and age of the participants was not diverse. In this study, participants only watched four emotional and four non-emotional videos. Ideally, for future studies, these numbers should be increased. Another suggestion is to measure how emotional the model's response is, in order to determine the amount of emotional cues necessary to disrupt people's ability to detect deception.

This is the first known research study where emotional and non-emotional lie detection is studied. More research should be conducted in order to validate the findings of this study. By further examining the impact of emotions on lie detection, we may be able to discover more effective ways to detect lies, which can be applied to many instances, such as improving criminal justice personnel's ability to detect lies with accuracy.

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## Appendix A

Screenshots of how the participants view each video.



Non-Emotional Truth



Emotional Lie

## Appendix B

How emotional will the response from these questions be?

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-5      -4      -3      -2      -1      0      1      2      3      4      5

-5= strong negative emotional response.

-3= average negative emotional response.

-1= little negative emotional response.

0- non emotional response.

1- little positive emotional response.

3- average positive emotional response.

5- strong positive emotional response.

1. Briefly describe your best vacations? \_\_\_
2. What did you wanted to be when you were young, and why? \_\_\_
3. What were you scared of when you were younger, and why? \_\_\_
4. What is your favorite movie about? Why? \_\_\_
5. Briefly describe your best friend in high school? \_\_\_
6. Briefly describe your best experience in high school? \_\_\_
7. What inspired you to follow your career path? Why? \_\_\_
8. Have you ever been in a physical fight? How was it? \_\_\_
9. What did you do yesterday? \_\_\_
10. Do you miss your high school times? Why? \_\_\_
11. If you could gain any extraordinary ability, what would you choose and why? \_\_\_
12. Briefly describe what do you usually cook by yourself? \_\_\_
13. What was your best romantic relationship like? \_\_\_
14. What is your family like? \_\_\_
15. Briefly describe what did you eat today? \_\_\_
16. What is your favorite type of food? Why? \_\_\_
17. Briefly describe what assignment you have due tomorrow? \_\_\_
18. What is the last movie you saw about? \_\_\_
19. What did you do last weekend? \_\_\_
20. Briefly describe your last pet? \_\_\_
21. What do you usually do after class? \_\_\_

22. What extracurricular activity did you do more after high school? Why? \_\_\_
23. How much do you know about computers? \_\_\_
24. Who is your favorite super hero? Why? \_\_\_
25. What is the most unnecessary thing you had bought? Why? \_\_\_

## Appendix C

### Emotional/Non-Emotional Lie Detection

#### Consent Informed Consent Statement

Thank you for your interest in this research study. If you agree to participate, you will be asked to respond to some questions about how you relate to others and about your basic demographic information. You will also view some short videos and determine whether the person depicted is lying or telling the truth. You are free to skip any questions you feel uncomfortable addressing. Your participation in this study is strictly voluntary and you may choose to withdraw from the study at any time without any penalty or prejudice. The project should take between 10-15 minutes of your time. The information obtained from your responses will be analyzed only as part of aggregate data and all identifying information will be absent from the data in order to ensure anonymity. Your responses will be kept confidential and that data obtained from this study will only be available for research and educational purposes. In order to participate in this study you need to be 18 years old or older.

#### Questions about the Research

If you have questions regarding this study, you may contact the principal investigator, David De la Cruz at dad991@lionmail.lindenwood.edu or the course professor, Dr. Nohara-LeClair at mnohara-leclair@lindenwood.edu Clicking on the "Agree" button below indicates that you have read and agreed with all the information previously mentioned, and you are legally 18 years old or more.

- Agree
- Disagree

#### Display This Question:

If Informed Consent Statement Thank you for your interest in this research study. If you agree to... <span style="font-family:arial,Helvetica,sans-serif;">Disagree</span></span> Is Selected

No Thank you for taking the time to read my consent statement!

If Thank you for taking the ti... Is Displayed, Then Skip To End of Survey



Q11 When someone else is feeling excited, I tend to get excited too

- Always
- Often
- Sometimes
- Rarely
- Never

Q13 It upsets me to see someone being treated disrespectfully

- Always
- Often
- Sometimes
- Rarely
- Never

Q14 I enjoy making other people feel better

- Always
- Often
- Sometimes
- Rarely
- Never

Q15 I have tender, concerned feelings for people less fortunate than me

- Always
- Often
- Sometimes
- Rarely
- Never

Q16 I can tell when others are sad even when they do not say anything

- Always
- Often
- Sometimes
- Rarely
- Never

Q17 I find that I am “in tune” with other people’s moods

- Always
- Often
- Sometimes
- Rarely
- Never

Q18 I get a strong urge to help when I see someone who is upset

- Always
- Often
- Sometimes
- Rarely
- Never

Q19 When I see someone being taken advantage of, I feel kind of protective towards him\her

- Always
- Often
- Sometimes
- Rarely
- Never

Q20 Other people's misfortunes do not disturb me a great deal

- Always
- Often
- Sometimes
- Rarely
- Never

Q21 I remain unaffected when someone close to me is happy

- Always
- Often
- Sometimes
- Rarely
- Never

Q22 When a friend starts to talk about his/her problems, I try to steer the conversation towards something else

- Always
- Often
- Sometimes
- Rarely
- Never

Q23 I do not feel sympathy for people who cause their own serious illnesses

- Always
- Often
- Sometimes
- Rarely
- Never

Q24 I become irritated when someone cries

- Always
- Often
- Sometimes
- Rarely
- Never

Q25 I am not really interested in how other people feel

- Always
- Often
- Sometimes
- Rarely
- Never

Q26 When I see someone being treated unfairly, I do not feel very much pity for them

- Always
- Often
- Sometimes
- Rarely
- Never

Q27 I find it silly for people to cry out of happiness

- Always
- Often
- Sometimes
- Rarely
- Never

Q40 Please watch the following videos and answer the question: Is the person in the video lying or telling the truth?

ANL

- True
- Lie

ANT

- True  
 Lie

AEL

- True  
 Lie

AET

- True  
 Lie

Display This Question:

- If A NE Lie True Is Selected  
 Or A NE True True Is Selected  
 Or A E Lie True Is Selected  
 Or A E True True Is Selected

A ANS True By using the slider below indicate the extend to which you relied on intuition and observation when judging the truthfulness of the model in the video.

\_\_\_\_\_ I feel it (Intuition)

\_\_\_\_\_ I observed truthful signs or behavior

Display This Question:

If By using the slider below indicate the extend to which you relied on intuition and observation when judging the truthfulness of the model in the video. I observed truthful signs or behavior Is Greater Than or Equal to 50

What Signs Great job. Which signs and/or behavior did you noticed in the video? For example, eye movement, tone of voice, or any signs you observed.

Display This Question:

If Click to write the question text Lie Is Selected

Or A NE True Lie Is Selected

Or A E Lie Lie Is Selected

Or A E True Lie Is Selected

A ANS Lie By using the slider below indicate the extend to which you relied on intuition and observation when judging the deception of the model in the video.

\_\_\_\_\_ I feel it (Intuition)

\_\_\_\_\_ I observed deception signs or behavior

Display This Question:

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What Signs Great job. Which signs and/or behavior did you noticed in the video? For example, eye movement, tone of voice, or any signs you observed.

Display This Question:

If A NE True True Is Not Displayed

BNT B NE True

True

Lie

Condition: True Is Displayed. Skip To: End of Block.

Display This Question:

If A NE Lie True Is Not Displayed

BNL B NE Lie

True

Lie

Condition: True Is Displayed. Skip To: End of Block.

Display This Question:

If A E Lie True Is Not Displayed

BEL B E Lie

- True  
 Lie

Condition: True Is Displayed. Skip To: End of Block.

Display This Question:

If A E True True Is Not Displayed

BET B E True

- True  
 Lie

Condition: True Is Displayed. Skip To: End of Block.

Display This Question:

If A NE Lie True Is Selected

Or A NE True True Is Selected

Or A E Lie True Is Selected

Or A E True True Is Selected

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Or A E Lie Lie Is Selected

Or A E True Lie Is Selected

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What Signs Great job. Which signs and/or behavior did you noticed in the video? For example, eye movement, tone of voice, or any signs you observed.

Display This Question:

If A NE Lie Lie Is Not Displayed

And B NE Lie True Is Not Displayed

CNL C NE Lie

True

Lie

Condition: True Is Displayed. Skip To: End of Block.

Display This Question:

If A NE True True Is Not Displayed

And B NE True True Is Not Displayed

CNT C NE True

True

Lie

Condition: True Is Displayed. Skip To: End of Block.



Display This Question:

If A E Lie True Is Not Displayed  
And B E Lie True Is Not Displayed

CEL C E Lie

- True  
 Lie

Condition: True Is Displayed. Skip To: End of Block.

Display This Question:

If A E True True Is Not Displayed  
And B E True True Is Not Displayed

CET C E True

- True  
 Lie

Condition: True Is Displayed. Skip To: End of Block.

Display This Question:

If A NE Lie True Is Selected  
Or A NE True True Is Selected  
Or A E Lie True Is Selected  
Or A E True True Is Selected

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Display This Question:

If A NE Lie True Is Not Displayed

And B NE Lie True Is Not Displayed

And C NE Lie True Is Not Displayed

DNL D NE Lie

True

Lie

Condition: True Is Displayed. Skip To: End of Block.

Display This Question:

If A NE True True Is Not Displayed  
And B NE True True Is Not Displayed  
And C NE True True Is Not Displayed

DNT D NE True

- True
- Lie

Condition: True Is Displayed. Skip To: End of Block.

Display This Question:

If A E True True Is Not Displayed  
And B E True True Is Not Displayed  
And C E True True Is Not Displayed

DET D E True

- True
- Lie

Condition: True Is Displayed. Skip To: End of Block.

Display This Question:

If A E Lie True Is Not Displayed  
And B E Lie True Is Not Displayed  
And C E Lie True Is Not Displayed

DEL D E Lie

- True
- Lie

Condition: True Is Displayed. Skip To: End of Block.

Display This Question:

If A NE Lie True Is Selected

Or A NE True True Is Selected

Or A E Lie True Is Selected

Or A E True True Is Selected

A ANS True By using the slider below indicate the extend to which you relied on intuition and observation when judging the truthfulness of the model in the video.

\_\_\_\_\_ I feel it (Intuition)

\_\_\_\_\_ I observed truthful signs or behavior

Display This Question:

If By using the slider below indicate the extend to which you relied on intuition and observation when judging the truthfulness of the model in the video. I observed truthful signs or behavior Is Greater Than or Equal to 50

What Signs Great job. Which signs and/or behavior did you noticed in the video? For example, eye movement, tone of voice, or any signs you observed.

Display This Question:

If Click to write the question text Lie Is Selected

Or A NE True Lie Is Selected

Or A E Lie Lie Is Selected

Or A E True Lie Is Selected

A ANS Lie By using the slider below indicate the extend to which you relied on intuition and observation when judging the deception of the model in the video.

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What Signs Great job. Which signs and/or behavior did you noticed in the video? For example, eye movement, tone of voice, or any signs you observed.

ENL E NE Lie

- True
- Lie

ENT E NE True

- True
- Lie

EET E E True

- True
- Lie

EEL E E Lie

- True
- Lie

Display This Question:

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- Or A NE True True Is Selected
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- \_\_\_\_\_ I feel it (Intuition)
- \_\_\_\_\_ I observed truthful signs or behavior
-

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- If Click to write the question text Lie Is Selected
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- Or A E True Lie Is Selected
- A ANS Lie By using the slider below indicate the extend to which you relied on intuition and observation when judging the deception of the model in the video.
- \_\_\_\_\_ I feel it (Intuition)
- \_\_\_\_\_ I observed deception signs or behavior

- Display This Question:
- If By using the slider below indicate the extend to which you relied on intuition and observation when judging the deception of the model in the video. I observed deception signs or behavior Is Greater Than or Equal to 50
- What Signs Great job. Which signs and/or behavior did you noticed in the video? For example, eye movement, tone of voice, or any signs you observed.

Display This Question:

If E NE True True Is Not Displayed

FNT F NE True

- True
- Lie

Condition: True Is Displayed. Skip To: End of Block.

Display This Question:

If E NE Lie True Is Not Displayed

FNL F NE Lie

- True  
 Lie

Condition: True Is Displayed. Skip To: End of Block.

Display This Question:

If E E Lie True Is Not Displayed

FEL F E Lie

- True  
 Lie

Condition: True Is Displayed. Skip To: End of Block.

Display This Question:

If E E True True Is Not Displayed

FET F E True

- True  
 Lie

Condition: True Is Displayed. Skip To: End of Block.

Display This Question:

If A NE Lie True Is Selected

Or A NE True True Is Selected

Or A E Lie True Is Selected

Or A E True True Is Selected

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Or A E Lie Lie Is Selected

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## Display This Question:

If E NE True True Is Not Displayed

And F NE True True Is Not Displayed

GNT G NE True

True

Lie

Condition: True Is Displayed. Skip To: End of Block.



Display This Question:

If E NE Lie True Is Not Displayed  
And F NE Lie True Is Not Displayed

GNL G NE Lie

- True  
 Lie

Condition: True Is Displayed. Skip To: End of Block.

Display This Question:

If E E Lie True Is Not Displayed  
And F E Lie True Is Not Displayed

GEL G E Lie

- True  
 Lie

Condition: True Is Displayed. Skip To: End of Block.

Display This Question:

If E E True True Is Not Displayed  
And F E True True Is Not Displayed

GET G E True

- True  
 Lie

Condition: True Is Displayed. Skip To: End of Block.

Display This Question:

If A NE Lie True Is Selected  
Or A NE True True Is Selected  
Or A E Lie True Is Selected  
Or A E True True Is Selected

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## Display This Question:

If E NE True True Is Not Displayed

And F NE True True Is Not Displayed

And G NE True True Is Not Displayed

HNT H NE True

True

Lie

Condition: True Is Displayed. Skip To: End of Block.

Display This Question:

If E NE Lie True Is Not Displayed  
And F NE Lie True Is Not Displayed  
And G NE Lie True Is Not Displayed

HNL H NE Lie

- True
- Lie

Condition: True Is Displayed. Skip To: End of Block.

Display This Question:

If E E Lie True Is Not Displayed  
And F E Lie True Is Not Displayed  
And G E Lie True Is Not Displayed

HEL H E Lie

- True
- Lie

Condition: True Is Displayed. Skip To: End of Block.

Display This Question:

If E E True True Is Not Displayed  
And F E True True Is Not Displayed  
And G E True True Is Not Displayed

HET H E True

- True
- Lie

Condition: True Is Displayed. Skip To: End of Block.

Display This Question:

If H NE Lie True Is Selected

Or H NE True True Is Selected

Or H E Lie True Is Selected

Or H E True True Is Selected

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Q28 A deceptive person is likely to avoid direct eye contact when asked a question.

- True
- False

Q29 People who are nervous or show fear when answering a question are lying.

- True
- False

Q30 Which of the following is the least reliable indicator of deception?

- Vocal quality
- Facial micro expressions
- Emotions display

Q31 When someone says a phrase like “To be honest...” or “To tell you the truth...” in response to a direct question:

- It indicates he is likely telling the truth
- It suggests he is lying or omitting something

Q32 Fake smiles can be identified because of the lack of action in which muscles?

- Muscles orbiting the eye
- Muscles at the corners of the mouth
- Muscles around the nose

Q33 When a person is lying, the mistakes that can reveal his deception are more likely to be found in:

- The words of his story
- The nonverbal behavior
- The voice tone

Q34 When asked the direct question “At what time did you arrived home yesterday?” a person being deceptive is more likely to respond by:

- Repeating the full question before answering
- Repeating just a few words of the question before answering

Q35 When asked a question, a person answering with a detail prologue is likely telling:

- A truthful story
- A deceptive story

Q36 When asked a question, a person who answers by using a strict chronological order is likely telling:

- A truthful story
- A deceptive story

Q37 When asked a question, a person who answers by sharing giving many details about the main event is likely telling:

- A truthful story
- A deceptive story

D1 What is your gender?

- Male
- Female

D2 What is your age?

D3 What is your occupation or major?

D4 How would you rate your ability to tell whether someone is lying or telling the truth?

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

D5 What is your ethnicity? (Check all that apply)

- White/Caucasian
- African American
- Hispanic
- Asian
- Native American
- Other \_\_\_\_\_

End

Thank you for completing the survey!

Thank you for taking some time to participate in this survey. The information you provided has been recorded and it will help discover more about deception and how emotions influence lie detection.

If you have any questions or concerns about this survey feel free to contact:

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