5-2016

The Ability to Detect Lies and Personality

David De la Cruz
Lindenwood University

The Ability to Detect Lies and Personality

David De la Cruz[6]

To detect if someone else is being deceptive is an important ability that all humans possess. However, not much is known about the factors that influence this ability. In previous studies, there have not been any results supporting a relationship among lie detection and sex, occupation, or age. However, I hypothesize that there might be a personality factor involved. In this study, individuals' ability to detect lies is correlated with their level of extraversion/introversion in order to discover personality differences in people's ability to detect deception accurately. I hypothesized that introverted individuals will be better at detecting deception because they do not spend as much time focusing on verbal communication, but rather focus more on nonverbal communication. As described in this research paper, nonverbal communication is always honest, and therefore maybe a reliable source of information at the time of detecting deception. The results revealed that introverted individuals are slightly better at detecting lies than extroverted individuals, however, the results were not statistically significant. Unconscious and conscious lie detection could affect how people detect lies, but there are also other factors that affect people's ability to detect deception, such as their personality.

Lying is a part of being human. Since an early age, individuals acquire the ability to create stories that may not be completely true or true at all. From innocent white lies to great deceptions, people can lie because they can consciously control the area of the brain responsible for verbal communication. However, individuals cannot control their nonverbal communication, because it occurs in the limbic system of the brain, which is the part of the brain that reacts to the

[6] David De la Cruz, Psychology Department, Lindenwood University. Correspondence regarding this paper should be addressed to David De la Cruz at Lindenwood University Psychology Department, Lindenwood University, 209 South Kingshighway, St. Charles, MO, 63301, or email at dad991@lionmail.lindenwood.edu

world subconsciously and instantaneously (Navarro & Karlins, 2008). People are unable to

control their limbic system, and therefore, they cannot control those reflexive, emotional

responses that occur while they interact with other individuals. These involuntary movements

make it possible for humans to detect deception. However, what factors makes an individual

good at catching liars?

Even if liars show deception, not all individuals can differentiate lies from the truth. Even

for trained individuals, like law enforcement agents, detecting lies is a difficult task (Ekman, &

O'sullivan, 1991). According to research data, the rates of detecting deception are only slightly

greater than chance (Klein & Epley, 2015). However, all humans possess the ability to detect lies

even at a subconscious level (Brinke, Stimson, & Carney, 2014). When people "feel" or have

some kind of "instinct" others are lying, it may not be some mysterious and irrational feeling, but

rather a signal from the mind or unconscious part of the brain that perceives something else.

Brinke et al. (2014) test the human capacity for unconscious lie detection by allowing some

participants time to consciously think about the veracity of the statement provided by the

researcher, while other group of participants were required to immediately respond whether the

statement was true or false. The group of participants who were required to quickly respond

whether the statements were truthful performed slightly better than the group of participants who

had time to think about the veracity of the statement (Brinke et al, 2014). Even if people do not

consciously perceive everything that their eyes see, human eyes can notice micro nonverbal

expressions, which their brain receives and processes. Micro expressions are nonverbal signals

that can occur in less than a second, which make it hard for untrained individuals to notice those

changes (Navarro & Karlins, 2008). Maybe is not humans' physical capabilities what allow

unconscious lie detection, but rather the mind perceiving these signals.

There is not a specific nonverbal signal for the behavior of lying (Vrij, Granhag, &

Porter, 2010). To detect lies, trained professionals make an educated guess by observing the

combination of an individual's verbal communication with possible negative nonverbal

expressions, like discomfort (Navarro & Karlins, 2008). Even though it is difficult to know

whether or not a person is lying, some individuals are more accurate in catching the liar through

nonverbal feedback and verbal cues, which allow the individual to better, understand facial

expressions (Ekman, & O'sullivan, 1991). There has not been any conclusive evidence that

supports any relationship among the ability to detect lies, and other variables such as age, sex, or

job experience (Ekman, & O'sullivan, 1991). Nonetheless, it is possible that the individual

differences in the ability to read body language and detect lies are in an individual's personality

traits, rather than in the job experience, age, or sex.

According to the "big five" model of personality structure, extraversion is a trait

commonly seen in individuals who are assertive, sociable, and have a tendency to seek

stimulation with others (Digman, 1990). In contrast, introversion is a personality trait commonly

seen in people that do not exhibit extraverted characteristics to such extent, or at all (Digman,

1990). For example, as individuals with an extraverted personality enjoy sociable settings with

many people, an individual with introvert characteristics prefer a sociable setting with fewer

people. Even if extraverted people are more involved with other individuals in social settings,

which give them more opportunities to practice their deceptive behavior and detection of lies in

others, there is no evidence that individuals with extraverted traits are better at detecting lies than

individuals with introverted traits (Aamodt & Custer, 2006). Participants in a study were asked to

self-rate their own ability to detect deception; individuals with extraverted traits rated their

ability as being better than average, as opposed to participants who displayed introverted traits

and rated their own ability as being average or below average (Elaad & Reizer, 2015).

However, there is the view that extraverted individuals spend more time focusing on

verbal communication, not on nonverbal communication in their social setting. Introverted

people on the other hand, do not concentrate on verbal communication as much as extraverts

(Digman, 1990). My hypothesis is that introverted people preference to "observe" the world

allows them to notice more nonverbal cues, and therefore, make them better at distinguishing

deception through nonverbal signals than extroverted individuals, who spend more time focus in

verbal communication. To determine if the hypothesis of this study is correct, the relationship

between the participants' ability to detect lies will be correlated with their level of

extraversion/introversion.

Method

Participants

The research was conducted on 50 participants, 40% of them were male, and 60%

female. However, 10 individuals were omitted from the study because there was not sufficient

data. Only the results of 40 participants were used to calculate the results and determine whether

or not there is a correlation. All participants volunteered to take part in the online study and were

not excluded by any means, except if they were less than 18 years old, the legal age of consent.

Before starting the study, volunteers were asked to agree to participate in the study and stating

they were 18 years old or more. The mean age of the participants was 22.4 years ($SD = 2.2$

years). Participants were recruited through Facebook, a popular online social media site; they

were able to access the survey by clicking on the provided link. Participants received extra

information about body language and lie detection, if they were interest in the topic.

Materials

The informed consent statement at the beginning of my online survey informed the

participants about the research and stated that the participant needed to be 18 years old or older

in order to participate in the study (See Appendix A). The personality survey was constructed in

Qualtrics by the research from questions found in different Big Five personality inventories

online (IPIP Big-Five Factor makers; Personality Type Assessments; Self-Test Personality).

Only questions pertaining extraversion/introversion were used. When choosing questions

simplicity was taken into consideration, in order to avoid participants from misunderstanding the

question. There were only 20 questions chosen from all the pool of questions in order to avoid

the participant to lose interest in the study (see Appendix B).

The videos employed in this research were developed by Klein and Epley (2015). There

were 10 videos, lasting between 20 to 60 s. In each video there is a different individual

previously told to answer the following question with a truthful or deceptive response (Epley,

Klein, Zhou, DelViscio, & Storoz, 2015). The individuals did not know the question before hand,

which did not allowed them to create a lie or story in advance, and therefore, showing a more

natural response. The individuals in the video are from different ethnic groups and they clearly

show body language signals when answering the question. The videos can be seen online at

(http://www.nytimes.com/interactive/2014/03/21/science/can-you-spot-the-liar.html). A five-

questions demographic survey was also created by the researcher to discover more about the

participants. The demographic questions were based on common information including

participants: gender, age, occupation or major, ethnicity, and self-rate of their ability to detect

lies (see Appendix C). A thank you note for the participants and extra information about

detecting deception through nonverbal communication was also included in the survey (see

Appendix D).

Procedure

Participants could complete the online survey in their own selected environment. After

reading and agreeing to the consent statement the participants commenced the study. Participants

were asked 20 multiple choice questions in order to measure their extraversion/introversion

level. Each page contained five questions, which appeared in a random order. Participants were

then instructed to watch 10 online videos that followed and decide if the individual in the video

was responding with a lie or with the truth. The order of the videos was randomized in order to

overcome practice and video order effect. After the participants watched the videos and

responded to the question following each of the 10 videos, they answered five demographics

questions. After finishing responding the demographic section, the participant received a thank

you note and additional information.

<div align="center">

Results

</div>

The extraversion/introversion personality test scores ranged from 20 (lowest) to 100

(highest). The participants were not considered fully extravert or introvert due to their results, but

rather the extraversion/introversion level variable was considered a continuous variable. The

lower the score, the more introverted the participant, the highest the score, the more extraverted

the participant. The number of extraverted and introverted participants in this study was almost

equal. In average participants' score were only slightly more introvert or extrovert, with only a

few participants' scores being extremely extravert or introvert (M= 59.21, SD= 9.12). Each

correct answer after a video was worth 1 point, with the highest being 10 and the lowest 0, the

participants' ability to detect lies was also a continuous variable (M= 6.23, SD= 1.56). According

to the participants' self-rate of their ability to detect lies, it was interesting to find that most

participants perceive their own ability to detect lies lower as it truly was (M= 5.45, SD= 2.69).

Using the Pearson's correlational analysis, the participants' level of

extraversion/introversion was correlated with their number of correct answers in the video

section. The results did not show any statistically significant correlation, however, there was a

small negative correlation suggesting that the more introverted an individual is, the better their

lie detection score, $r = -0.228$, $p < 0.79$. Multiple correlational tests were conducted with the

acquired data in order to confirm Ekman and O'sullivan (1991) results that did not support any

relationship among the ability to detect deception, and other variables. Participants' level of

extraversion/introversion was correlated with their age, sex, and ethnicity, in order to discover if

any of the demographic factors may be related to the ability to detect deception. As the results

from Ekman and O'sullivan (1991), the results from this study did not showed any correlation

between the ability to detect lies and other variables, such as age, sex, and ethnicity.

Discussion

Even if the research hypothesis results was not statistically significant and could not be

supported with the acquired data, the results suggested that people with introverted personality

traits are slightly better at reading body language and detecting deception than individuals with

extraverted personality traits. More data should be collected in order to test the hypothesis that

the level of introversion/extraversion affects an individual ability to detect lies. In order to fully

measure people's ability to detect lies, the participants should be instructed to avoid guessing if

the response seen in the video is the truth or a lie. When assessing the videos, participants could

use unconscious intuition or conscious thinking to detect lies (Albrechtsen, Meissner, & Susa,

2009). Intuition is a factor that could affect the results, as seen in the study conducted by Brinke

et al. (2014) participants who used intuition to detect deception were slightly better than

participants who used cognitive processes. In order to obtain more accurate results, the

participants should only use one approach to detect lies. Participants consciously detecting

deceptive behavior have time to use previous knowledge obtain from other sources, while

participants' unconsciously detecting lies rely on their intuition. By timing participants, allowing

them to watch the videos only once, and forcing them to detect deception fast, unconscious lie

detection could be measured. To measure conscious lie detection, the participants should be

advised to watch the video more than once, and take their time before deciding of the veracity of

the statement. Whether personality factors are related to participants' conscious or unconscious

lie detection abilities is unknown.

References

Aamodt, M. G., & Custer, H. (2006). Who can best catch a liar? A meta-analysis of individual

differences in detecting deception. *Forensic Examiner, 15*(2), 6–11. Retrieved from

http://www.theforensicexaminer.com/

Albrechtsen, J. S., Meissner, C. A., & Susa, K. J. (2009). Can intuition improve deception

detection performance? *Journal of Experimental Social Psychology, 45*(4), 1052-1055.

doi:10.1016/j.jesp.2009.05.017

Brinke, L. T., Stimson, D., & Carney, D. R. (2014). Some evidence for unconscious lie

detection. *Psychological Science, 25*(5), 1098-1105. doi: 10.1177/0956797614524421

Digman, J. M. (1990). Personality structure: Emergence of the five-factor model. *Annual Review*

of Psychology, 41(1), 417-440. doi: 10.114641.020190.002221

Ekman, P., & O'sullivan, M. (1991). Who can catch a liar? *American Psychologist, 46*(9), 913-

920. doi: 10.1037/0003-066x.46.9.913

Elaad, E., & Reizer, A. (2015). Personality correlates of the self-assessed abilities to tell and

detect lies, tell truths, and believe others. *Journal of Individual Differences, 36*(3), 163-

169. doi: 10.1027/1614-0001/a000168

Epley, N., Klein, N., Zhou, H., DelViscio, J., & Storoz, B. (2014). *Can you spot the liar*?

Retrieved from http://www.nytimes.com/interactive/2014/03/21/science/can-you-spot-

the-liar.html

 IPIP Big-Five Factor makers. (n.d.) *Personality-testing.* Retrieved from http://personality-

testing.info/tests/IPIP-BFFM/

Klein, N., & Epley, N. (2015). Group discussion improves lie detection. *Proceedings of the*

National Academy of Sciences USA, 112(24), 7460-7465. doi:10.1073/pnas.1504048112

Navarro, J., & Karlins, M. (2008). *What every BODY is saying: An ex-FBI agent's guide to*

speed-reading people. New York, NY: Collins Living.

Personality Type Assessments. (n.d.). *TypeFinder.* Retrieved from

http://www.truity.com/view/tests/personality-type

Self-Test Personality. (n.d.) *Psychology Today.* Retrieved from

http://psychologytoday.tests.psychtests.com/

Vrij, A., Granhag, P. A., & Porter, S. (2010). Pitfalls and opportunities in nonverbal and verbal

lie detection. *Psychological Science in the Public Interest, 11*(3), 89-121.

doi:10.1177/1529100610390861

Appendix A

Informed Consent form

Thank you for your interest in this research project. If you agree to participate, you will be asked to respond some questions about your personality and demographics. You will also view some brief 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.

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 to 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.

Agree   Disagree
○   ○

Are you 18 years or older?
Yes   No
○   ○

Appendix B

In conversations or at meetings, I plan what I'm going to say before speaking.

- ○ Most of the time

- ○ Often

- ○ Sometimes

- ○ Rarely

- ○ Almost never

I present myself in ways that are very different from who I really am.

- ○ Most of the time

- ○ Often

- ○ Sometimes

- ○ Rarely

- ○ Almost never

When I go out socially, it's usually with a large group of friends.

- ○ Most of the time

- ○ Often

- ○ Sometimes

- ○ Rarely

- ○ Almost never

I eagerly share my thoughts and feelings with other people.

- ○ Most of the time

- ○ Often

- ○ Sometimes

- ○ Rarely

- ○ Almost never

I enjoy spending time alone.

- ○ Most of the time

- ○ Often

- ○ Sometimes

- ○ Rarely

- ○ Almost never

I tend to be reserved when dealing with people I don't know very well.

- ○ Most of the time

- ○ Often

- ○ Sometimes

- ○ Rarely

- ○ Almost never

I get uneasy when pressed to come up with a response to something or someone on the spot.

- ○ Most of the time

- ○ Often

- ○ Sometimes

- ○ Rarely

- ○ Almost never

I feel uneasy in situations where I am expected to display physical affection.

- ○ Most of the time

- ○ Often

- ○ Sometimes

- ○ Rarely

- ○ Almost never

I am very talkative.

- ○ Most of the time

- ○ Often

- ○ Sometimes

- ○ Rarely

- ○ Almost never

Before making a decision, I need a lot of time to think things through.

- ○ Completely true

- ○ Mostly true

- ○ Somewhat true

- ○ Mostly false

- ○ Completely false

When conversing with someone, I reveal personal facts about myself.

- ○ Most of the time

- ○ Often

- ○ Sometimes

- ○ Rarely

- ○ Almost never

I enjoy small-talk.

- ○ Completely true

- ○ Mostly true

- ○ Somewhat true

- ○ Mostly false

- ○ Completely false

I'm a private person.

- ○ Completely true

- ○ Mostly true

- ○ Somewhat true

- ○ Mostly false

- ○ Completely false

I feel comfortable talking to strangers.

- ○ Completely true

- ○ Mostly true

- ○ Somewhat true

- ○ Mostly false

- ○ Completely false

I enjoy meeting new people.

- ○ Completely true

- ○ Mostly true

- ○ Somewhat true

- ○ Mostly false

- ○ Completely false

It's important to me to have an active social life.

- ○ Completely true

- ○ Mostly true

- ○ Somewhat true

- ○ Mostly false

- ○ Completely false

I tend to think "out loud".

- ○ Completely true

- ○ Mostly true

- ○ Somewhat true

- ○ Mostly false

- ○ Completely false

I consider myself an outgoing person.

- ○ Completely true

- ○ Mostly true

- ○ Somewhat true

- ○ Mostly false

- ○ Completely false

I like to attend gatherings where I can meet new people.

- ○ Completely true

- ○ Mostly true

- ○ Somewhat true

- ○ Mostly false

- ○ Completely false

When I'm really sad or down, I seek the company of others.

- ○ Completely true

- ○ Mostly true

- ○ Somewhat true

- ○ Mostly false

- ○ Completely false

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

Appendix C

What is your gender?

- ○ Male

- ○ Female

What is your age?

[   ]

What is your occupation or major?

[   ]

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

Poor					Average					Excellent
0	1	2	3	4	5	6	7	8	9	10
○	○	○	○	○	○	○	○	○	○	○

What is your ethnicity? (Check all that apply)

- ☐ White/Caucasian

- ☐ African American

- ☐ Hispanic

- ☐ Asian

- ☐ Native American

- ☐ Other [   ]

Appendix D

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 whether there is a relationship between the ability to read body language and an individual's level of introversion/extroversion.

If you are interested to know more about body language, clicking the link below will take you to a webpage with some of the most common nonverbal signs.
http://www.enkivillage.com/body-language-examples.html
If you have any questions or concerns about this survey feel free to contact:

David De la Cruz
Principal Investigator
(618)-964-6754
Dad991@lionmail.lindenwood.edu

Dr. Michiko Nohara-LeClair
Course Instructor
(636)-949-4371
mnohara-leclair@lindenwood.edu