Evaluating Truthfulness and Detecting Deceit

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Abstract

Lying is a day-to-day fact of life and it has been shown that a person will lie in twenty percent of their daily interactions (Chiu, Hong, & Chiu, 2016). Deceit, whether for a high-stake reason such as to cover up a crime, or a little white lie such as, “Your hair looks great,” can be difficult to detect. Being able to ascertain whether a person is being truthful or not has yet to become a science, however, research has found techniques that prove positive for uncovering the truth. While there are several different ways interrogators discern the truth from a lie, this paper will focus on the detection of deception through the carefully crafted interview technique of reading facial expressions. It is believed that if an interviewer is properly trained to question a subject, the truth can be uncovered and deceit can be detected approximately 70% of the time (Vrij & Granhag, 2014). To discover if this can be done, an experiment will be conducted in a controlled environment to determine if an interviewer can accurately detect falsified emotions on different subjects.
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Everybody lies (Hutchinson, 2015). It is not uncommon for people to tell lies on a day-to-day basis for many different reasons, such as to avoid conflict, to make themselves look better, to avoid consequences of their actions, or to avoid hurting someone else’s feelings (Chiu, Hong, & Chiu, 2016). So, with lying being so common, how can someone effectively detect when they are being lied to?

Detecting deception from an individual can prove to be a tough task, and one that has yet to become an exact process. However, when one is trained in this practice, more often than not, it is possible to determine when a person is being deceitful, or is telling the truth. Two of the ways this can be accomplished by using a polygraph machine, as well as conducting interviews of a subject and reading the subject’s facial expressions.

Literature Review

As people communicate with one another, they leak facial expressions which others can read to deduce emotional state. For example, when angry, the eyebrows drop down, the mouth tenses up and the nostrils flare, or when happy, the corners of the mouth draws upward, and the eyes “smile” (Porter & Brinke, 2008). These examples are of genuine expressions and often, they can prove difficult to read.

In Porter and Brinke’s (2008) article reviewing how to identify concealed and falsified facial expressions, it was found that today people are exceptionally gifted double crossers and when being deceitful it is not uncommon to mask or alter the natural facial expression that coincides with a particular emotion. There are three primary ways that this can be accomplished. The first way is to simulate an expression. A simulated expression is achieved when the expression is not accompanied by a true emotion.
Psychologists, as well as interrogators, might also look at this as faking an expression. Next, one can *mask* an expression. This is when a subject covers up the expression for an emotion by distorting it with one that relates to an alternate feeling. Lastly, somebody who is being deceitful might *neutralize* an expression which blocks the expression of a genuine emotion by leaving the face in a neutral state, or expressionless. However, it is thought some aspects of facial expressions are not able to be consciously controlled (Porter et al., 2008).

In 1872, Charles Darwin hypothesized that some facial expressions cannot be voluntarily produced, however, they may be involuntarily communicated within the sight of a bona fide feeling. Darwin stated, “A man when moderately angry, or even when enraged, may command the movements of his body, but…those muscles of the face which are least obedient to the will, will sometimes alone betray a slight and passing emotion” (Porter et al., 2008). This became known as Darwin’s *inhibition hypothesis*. Many years later, Dr. Paul Eckman expounded on Darwin’s theory and started studying microexpressions. He believes that when an emotion is hidden, that the true emotion may reveal itself as a microexpression, or a brief facial expression that is typically displayed by a person who is purposefully or unconsciously hiding an emotion. When we exhibit microexpressions, we do so very quickly, usually within 1/5 to 1/25 of a second, which is almost impossible to catch with the naked eye (Porter et al., 2008). However, in interviews such as ones conducted by legal investigators that are being recorded, it is possible to replay the interrogation and more effectively catch these microexpressions (Vrij & Granhag, 2014). It is found, however, in Porter et al.’s (2008) article that studies concerning the effectiveness on reading microexpressions come few and far between, but the idea has received a lot of publicity and is being looked at more and more over time. Porter et al.’s (2008) article
states that training can help people identify the different types of microexpressions and become better at reading others’ emotions and detecting dishonesty.

According to Vrij et al. (2014), it must also be taken into consideration that there are differences in accuracy in detecting lies about past behavior and future behavior or intentions. In their study, overall results showed a 70% accuracy in evaluating honesty about future intentions and an average of 55% accuracy when doing so regarding past behavior. This difference could be because when liars have time to prepare for their questions, such as they would be regarding past behavior, it becomes easier to deceive their interrogator.

So, when considering that the ability to detect deceit by the average person is seldom greater than 60% (Grubin & Madsen, 2005), we might ask ourselves why, then, don’t we use a polygraph machine to conduct the examination? This technique, too, is still not an exact science. Accuracy of polygraph machines is still in question and most states do not allow the results of these tests to be introduced in legal situations in a courtroom setting because they are still deemed too unreliable (Han, 2016). When detecting deceit, polygraph machines measure non-behavioral responses such as sweating, heart rate, body temperature, respiration, and, sometimes, brain activity, whereas, behavioral responses, which include eye contact, the speed and fluency of speech patterns and non-verbal responses such as microexpressions, cannot be measured by the polygraph but can be deduced by visual interpretation by the interviewer (Han, 2016). Grubin et al.’s (2005) article states that many studies have been conducted to determine what behavioral responses are associated with deception, but this is most always based on the assumption that people who are being deceitful will be more nervous than people who are displaying honesty. This is what makes a polygraph unreliable. Polygraphs tend to measure anxiety and fear, which, sometimes, but not always, a behavior pattern with liars, therefore, it cannot be said that any time
someone displays signs of fear or anxiety that they are lying. Anxiety can rise just to the idea of being connected to the polygraph and so on.

Even though most large police departments have had their own polygraph examiners on staff since the 1970’s (Grubin, 2005), because their validity is still inconclusive, researchers must keep looking for other ways to detect lies, especially in cases where serious crimes or terrorism is involved. Because there is no simple way to detect deception and the polygraph only detects physiological responses and not the lies themselves, the focus on studying microexpressions is becoming more necessary.

When a person is being deceptive, it is almost impossible for them to falsify the facial expression that corresponds to the emotion that is being projected. Future research in microexpressions, and being able to read them, is vital in detecting deception (Matsumoto & Hwang, 2011). When a person is being honest, their facial expressions will almost always genuinely match their emotions. For instance, when a person is truly displaying signs of happiness, the zygomatic muscle will be contracted which pulls up the corners of the mouth into a smile. Also, the orbicularis oculi, the muscles that surround the eyes, will lower the brow while pulling up the cheeks at the same time. When someone is falsely expressing happiness, only the muscle pulling up the corners of the mouth will be contracted and the muscles around the eyes will not. In these instances, when the emotion displayed is not genuine, it can be assumed that the subject being examined is being deceptive, however, there is no known published research to set the validity of this (Porter et al., 2008).

Because the research in deception and microexpressions is so limited at this point in time, a study was conducted to determine whether or not one’s honesty can be effectively evaluated by reading facial expressions. In this study, a sample of adults were taken from the North Texas
DETECTING DECEPTION

region of the United States and randomly assigned to either an experimental or a control group and examined to determine if truthfulness could be determined by reading facial expressions. It was hypothesized that persons trained in reading facial expressions could accurately detect deceit through reading microexpressions alone.

Method

Participants

The participants consisted of 42 freshmen psychology students from a North Texas college (19 female, 23 male) with a mean age of 22.7 years who were given vouchers for a free meal at the campus café for their participation in the experiment. Fifteen police (6 female, 9 male) with a median age of 31.6 years who were from the same geographic region and trained in advanced interrogation techniques and reading facial expressions were randomly selected from a group of volunteers to judge the veracity of the facial expressions.

Materials and Procedure

The students were randomly assigned to a control group and an experimental group. After being assigned to their respective groups, the students were told they would be watching a video of a crime, as it was occurring, of a man who was snatching a woman’s purse, and, after watching the video, they would be taken to a testing room where a videotaped interview would be conducted by a police officer regarding what they had witnessed in regards to the video. The students assigned to the control group were instructed to be completely honest in their responses to the questions asked by the police officer regarding the video and the students assigned to the experimental group were instructed to be deceitful in their responses regarding the video. Only the responses that the students assigned to the experimental group were told to give to the officer were manipulated. In this study, the facial expressions of the students were not controlled. After
the students were assigned to their groups and given their instructions, one of the police officers was randomly selected to watch the same video that the students were to watch and was instructed that he would be conducting an interview with each of the students regarding what happened in the video. The remaining officers were then taken to a separate room where they were told they would be reviewing the recorded interviews of each of the students and would be tested to see if they could accurately judge the veracity of the interviews in regards to the students’ facial expressions.

After watching the video, the students were then taken to a testing room where they were seated, one at a time, across a desk from the police officer who would debrief each of the students regarding what they had seen in the video. The interviews of the students were videotaped using a Canon XA10 HD Professional Camcorder recording at a speed of 30 frames per second. The interview regarding the details of the video lasted approximately 3 minutes for each subject being questioned. After the interview was finished, the videotaped recording was then played, frame by frame using Adobe Premiere Pro CC video software for each of the remaining officers who were trained to read facial expressions. Each frame of the video appeared to the officers for 3 seconds and the officers watching the video were asked to judge the veracity of the students’ responses and facial expressions while they were being interviewed and note their conclusions as to whether the students were being honest or deceptive. The responses from the officers were then collected and checked to see if the officers accurately determined if the students were being honest or deceitful during their interviews.

All participants of this experiment were treated in accordance with APA ethical guidelines.
References


