Innocent Until Proven Guilty…or So You Thought

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Special Thanks

As the author and researcher for this study I would like to identify some individuals who have greatly helped me through this process. First, I'd like to thank my mother, Lori O'Connor for her continual support in my search for academic greatness not only throughout this process, but my whole life. Next, I'd like to thank my father for keeping my spirits raised and my outlook motivated through the often daunting pressures and challenges of chasing academic success. I'd also like to thank my thesis advisors, Professors Karl Kelley and Amy Buxbaum for helping me clear up the difficulties associated with such a complicated research topic, and doing so in a very limited timeline. Additionally, I'd like to thank North Central College for providing me with the educational foundation to build this research on. Finally, I'd like to thank all my friends and mentors in the law enforcement sector for providing their input concerning the topic and helping to relate some of the theoretical issues to real life occurrences.

Once again, thank you for your continued support.

Sincerely,

Mike R. O'Connor Jr.
Innocent Until Proven Guilty…or So You Thought

An Exploration of Deception and Lie Detection Abilities

Mike R. O’Connor

North Central College
Abstract

Lying can be thought of as a complex psychological interaction between an actor (liar) and an observer (lie detector). It can be argued that some people are better at lying and some are better at detecting deceptions. The current research explores individual differences in nonverbal indications of lying after committing a transgression and claiming otherwise. Additionally, this study identifies if individual observers are able to pick up on these nonverbal indications on a consistent basis and can correctly identify deceptions. Utilizing two actors who committed a transgression and filming their answers to an interrogation, researchers coded the content for nonverbal behavior which indicated lying. Then participants viewed this same video and attempted to identify in which case the “criminal” is lying. Results suggested that individuals are able to pick up on deception on a significantly higher level than a mere guess and have high confidence in their abilities. Important implications in law enforcement, project limitations, and suggestions for future studies are discussed.
Communication between differing species has been essential to their prosperity. From bees to humans, effective communication has been a key evolutionary component to survival. Although conveying accurate or truthful information can be helpful, in some cases various species have used deception to take advantage of others or otherwise enhance their individual standing. For example, the mimic octopus “deceives" its observers by mimicking the size, color, and posturing of more dangerous species like a poisonous flat fish in order to evade predator's attacks (Mimic Octopus n.d., para 4). Similar to the mimic octopus, other species have developed similarly complex efforts to deceive others. The ability to effectively deceive gives them an advantage.

Undoubtedly, one of the most practiced species which look to deceive others is that of the homo-sapiens...or the human being. Quite literally, everywhere we look, go, eat, talk, or even sleep some form of deception is upon us. Think of when you decide to stay up later than normal and you attempt to lie to yourself by saying "Oh I'll be fine in the morning...I'll get up easily". This can be considered (depending on your actual ability to wake up easily) an instance where you lie to yourself in order to rationalize your decision to stay up late. In other instances, we are bombarded by deception within advertising via television, movies, magazine articles, etc. Interestingly, our interest in deception has increased over the years, recently entering the entertainment realm. The show "Lie to Me", which aired on the FOX Network starting in 2009, focuses on the idea that individuals telling lies are in actuality, giving away their lie via intricate "tell tale signs of deception". On a side note, the contributing psychologist
to the show, Paul Eckman has many interesting works concerning the field of deception and is referenced quite regularly within the current study. The fact that this topic was turned into a mainstream television show demonstrates the widespread interest and applicability that deception has within individuals' daily lives.

Playing on the importance of interpersonal communication within our society, humans have evolved one of the most intricate and interesting communication systems currently in existence. For example, humans may convey a message via one of two routes: verbally or nonverbally. The verbal channel, which consists of the conveying of messages via the usage of language, talking, or lack thereof is one of the most recognizable forms of general communication. Separately, the nonverbal channel of communication involves a range of messages which our body may convey with or without our purposeful intent, and can include actions such as posturing, smiling, eye contact, or general movements (or lack thereof). In either case, the message is conveyed via channels of communication however the messages themselves can often be manipulated to form deceptions.

Although accurate and truthful communication is often seen as the primary goal of communication, just as in other species, the ability to effectively deceive others can be advantageous to the individual sending the messages. Similarly, the ability to accurately detect deception can be an advantage for the message receiver. Those that cannot detect deception are often gullible and can be taken advantage of easily by others. Think of an instance where warnings involving telemarketing scams become national news due to their effectiveness of targeting a "gullible" population, and taking advantage with their deceptive advantage. On the
other hand, those who see deception where there is none are often too skeptical and can become paranoid. These instances often plague new car buyers who are taught to be skeptical of car salesman’s techniques. Although this is often more useful than not, walking into a situation while already paranoid and with the anticipation of deception can hinder one’s ability to fully immerse themselves within the process/situation.

**Understanding Deception**

There are many ways to think of deception. Researchers have suggested that some deception is intentional whereas others are unintentional. Some may be to seek advantage for the individual (lying to sell a defective product) or altruistic (a little white lie to protect someone’s feelings). Deception can range in severity from playful fun (i.e. dressing up for Halloween) all the way to purposely indicating wrongful information to the Grand Jury. In this light, one of the most common forms of deception is the telling of a lie (Walters 1996). A lie can be defined as an intentionally false statement which is designed to deceive another person. Lying has become quite a hot topic within the psychological field of study, specifically within the law enforcement setting. A recent PsylINFO search yielded 956 articles with the word "lie" in the title, with 495 being published since 2000, and many of these concerned or mentioned lying within a criminal setting.

The process of lying is present in many settings, and Vrij (2008) suggests it may be an everyday occurrence with most everyone. Within the context of a criminal interview (interrogation), lying tends to involve far higher stakes than an everyday white lie. During a criminal investigation, the interrogated individual has a desire to avoid prosecution and
therefore will take interest in various methods to achieve this goal. One of these methods is the of telling a lie. This action is nearly expected by police investigators who are trained in current lie detection techniques. However, the question of the investigators' ability to pick up on these lies remains questionable. Although investigators go through training on how to identify a lie, their innate and natural ability to detect a lie goes relatively unmeasured. One measure which attempts to address one's ability to detect deception is that of Emotional Intelligence (EQ). However, not all researchers agree that this measure of lie detection ability is reliable. O'Sullivan (2005) suggests that even a general measure of emotional intelligence does not do a very good job of identifying those who are good at detecting deception. However, she does suggest that there may be a personality trait that may make one person a more accurate lie detector than another. At this time researchers are unsure if this specific personality characteristic concerning an efficiency in lie detection is naturally present or becomes present following years of training.

The current study looks to identify if individuals posses a natural ability to detect a lie, specifically an ability to observe non verbal indications in the suspect's behavior. Through reviewing psychological theories, acknowledging previous psychological research, and conducting a quasi experimental study this academic exploration looks to evaluate individuals' natural ability to detect a lie in a law enforcement context.

**Lie-Detection**

There are many complexities that surround lying, which range from the liar's ability to mask his or her deception all the way to the content of the lie, which can all effect the observer's
ability to detect the lie. Given the complexity of the issue, the ability to detect a lie is a very complicated process (Kassin 1999). An individual who wishes to detect the presence of a lie in another person's actions or statements must actively attempt to read the subject's behavior through a truly unbiased view. Unlike Pinocchio, there is no single reliable cue that we can use to detect a falsehood. Instead, we need to combine information from multiple channels of information including verbal (content) and a host of non-verbal cues. The non-verbal cues include general posture changes, blocking of the face with hands, smiling or lack thereof, and the usage of the hands or fingers as illustrators (Vrij 2008 & Walters 1996).

This view suggests that the information receiver must act as more of a sponge rather than microscope. As previous researchers have suggested, lying behavior cannot be seen consistently in one specific behavior across all individuals, but instead is seen more through a combination of verbal and non verbal behaviors which are "leaked" past conscious efforts to hide them (Eckman 2007). In this way, acting as a "sponge" and absorbing an overall understanding of a single individual's behavioral tendencies and how they might indicate a lie is a more effective manner of lie detection than focusing on a single verbal or non verbal lie indicator given the fact that individuals may "leak" their lie in differing ways (Walters 1996). Verbal indications of lying involve many differing types of speech (or lack thereof) which can range all the way from inconsistencies in alibis all the way to stuttering. Similar to non verbal communication, verbal indications of lying must be looked at in groupings of indications, rather than focusing on a single instance or indication (Walters 1996). For instance, if a person stutters on a normal basis and during the non intrusive portion of the interview, and he then once again stutters when asked a question which he is anticipated to lie, his latter
demonstration of stuttering should not be considered to be an indication of a lie given the fact that he stuttered during the establishment of the base behavioral model. The base behavioral model is produced during an interview when questions are asked that do not involve the subject in which is being investigated and yields no motivation for the subject to lie. For instance, if asked a series of questions concerning his name, current residence, relationship status, or job standings an individual who is being question concerning a murder has no motivation to lie concerning the base questions (Reid 1986). Therefore, his behavior (both verbal and non verbal) can be used as a base behavioral model which can be used in comparison to later behaviors during the actual interrogation process (where he has motivation to lie). Non verbal indications of lying are discussed further within the current study.

**Identification vs. Understanding.**

Reading a lie is quite separate from understanding a lie. Not only are interrogators and researchers expected to read and acknowledge the existence of a lie given suspect's behavior, but they are also expected to be able to interpret and understand the indication of the lie. For instance, an individual who is displaying defensive behavior which may be suggestive of telling a lie may have a leaned back posture with his arms crossed across his body (depending on base behavior) (Walters 1996 & Eckman 2007). This behavior can be seen in Figure 2 (page 11). Similarly, an individual who is displaying non defensive and "truthful" non verbal behavior which is suggesting that he is "fessing up" or is remorseful of something may have his head down, a forward posture, and is sitting in a slumped position. This behavior can also be seen in Figure 2 (page 11). The investigator should capitalize on these "leakages" and indications of
lying from the suspect by paying close attention to and taking note of which questions correspond to increases in these behaviors, suggesting that the suspect is lying in those specific questions. Understanding the lie which is being told is not an easy task and takes much practice and experience to successfully utilize one's observations and interpretations and turn them into raised suspicion during an interrogation. When attempting to detect the presence of a lie, investigators must take into consideration multiple variables including both the verbal and nonverbal indications as well as the actual details of the situation (evidence, admittance from suspect, etc.). Figure 1 helps to explain this relationship.

The actions of lying and lie detection have a clear cause and effect relationship where as a lie is told (or is suspected), the lie detection process then occurs. However, the relationship does not account for the many variables which surround the individuals' abilities to lie and to detect a lie. It is important to recognize that there is no certainty in lie detection (Walters 1996). Although there is a pattern to follow to help raise suspicions of investigators based on differences in behavior, investigators must remember the unique nature of a lie. The fact that some people are better liars than others can vastly complicate the lie detection process. For instance, although we may want to ignore the fact as a societal whole, there are natural born
liars amongst us. Take the compulsive liar as an example. In his article, Jozefowicz (2003) addresses the compulsive liar as a normal person within our society which tends to lie on a far greater tendency than an average person, even in spite of a lack of true and apparent motivation to lie. With an increase in tendency and practice comes an increase in lying "efficiency". Additionally, some individuals are better at lying due to their ability to suppress their emotions better than the average person. Separately however, some individuals are less apt to lying given their inability to hide their true feelings or mask their deception attempts with subdued behaviors. Due to this variation in lying ability, no single theory or nonverbal indication of lying can apply to all people and be relied upon on a regular basis as an efficient means to determine the presence of a lie. However, luckily for the investigator the abilities to detect a lie vary as well. Not all investigators are created equal. Often, detectives who go through similar training and have similar backgrounds show variation in their ability to detect a lie. Take for instance the case of the "Norfolk Four", who were wrongly accused and imprisoned for years after being interrogated by a Detective Ford of the Norfolk Police Department. The Detective, even after being faced with confounding evidence and truthful alibis still believed the suspects to be lying (Norfolk Four n.d.). This would be a prime example of how some detectives, even after receiving the proper training and many years of experience, lack the proper abilities to identify the presence of (or lack thereof) a lie, and charge the correct individuals with a crime. Due to the fact that Detective Ford thought he saw deception in the accused persons' behavior, and continued to do so even in light of confounding evidence, Detective Ford would stand as an example of an investigator who doesn’t successfully recognize the presence of deception, but in fact leans toward the other side of lie detection by seeing
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decception where there is not any, in spite of his many years of training and experience. Then, if training and past experience can not completely account for a detective's abilities to detect a lie that potentially leaves one other option: his or her natural abilities.

Current Strategies & Theories

The action of detecting a lie can depend on one's ability to acknowledge various verbal and non-verbal cues of deception (Walters 1996). Although there are no indications that either verbal or non-verbal cues are more valuable in determining the presence of a lie, this study focuses upon the non-verbal actions associated with lying. Some indications of lying seem to be more valuable than others (Granhag & Strömwall 2004), and non-verbal communication is no exception. Some research has indicated that during the action of telling a lie a "leak" of natural behavior occurs, which may be grossly separate from the message being spoken (Ekman 2007). It is in this separation of stated message and actual non-verbal indications which lie detectors may capitalize. Some of the specific non-verbal cues of lying which previous research has identified include fidgeting, gaze aversion, lack of eye contact, emotional dissonance, "red zone" touching, and general posture changes (Inabu et al. 2005, Walters 1996). "Red zone" touching is described as any increase (established from a baseline observation) in touching or blocking maneuver that an individual completes within a zone a few inches in diameter surrounding the nose, mouth, and chin area (Walters 1996). Experts in nonverbal communication go as far as to claim that non-verbal communication can significantly allow individuals to better their entire lives, even outside of recognizing lies within an interrogation setting (Navarro 2008). For instance, Eckman (2007) hypothesized that in interpersonal
relationships, if someone was better able to recognize attempts of deception in a significant other's behavior, then they were able to address the lie attempt and confront the problem rather than letting the lie go unacknowledged and accepted. Eckman stated that as one's ability to detect lies via another's leaked emotions increased, their own emotional health increased due to a better understanding of their relationships with others (Eckman 2007). Additionally, researchers are beginning to rely further on science, including recent breakthroughs in neuroscience, to advocate their stances and opinions on the reliability and value of non verbal behavior interpretation (Navarro 2008, Walters 1996).

**The Reid Technique.** Current techniques of detecting lies within law enforcement settings revolve primarily around the "Reid Technique" which incorporates various stages of questioning and observation (Inabau, Reid, Buckley, & Jayne 2005). One large law enforcement agency that currently utilizes the Reid Technique during training of investigators is the Illinois State Police Department. The Reid Technique utilizes training that heightens one's ability to detect lies, as a premise for creating better interrogators. For instance, lessons in the Reid Technique highlight how to interpret differing types of posturing with the personality and current psychological state of the individual under questioning (Inabau et al. 2005). Depending on the institution teaching the technique, weeks can be spent teaching future interrogators how to recognize non verbal indications of a lie and utilize these findings to their advantage. Although it may have been thought true by researchers, policing bodies, and the general public alike, some research has found that more training in lie detecting does not necessarily mean an improved ability to detect a lie (Kassin & Fong 1999). For examples of non verbal communication which the Reid Technique trains investigators to look for, address Figure 2.
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**Figure 2: Non Verbal Communication Taught within Reid Technique**

*Note the leaned back posture, crossed arms, and crossed legs signifying a “closed” position suggestive of deception.*

*Note the slumping forward posture, open arms and palms, and un-crossed legs signifying an “open” and submissive position suggestive of telling the truth.*

**Polygraph testing.** The renowned and feared testing process which is the most mainstream and widely valued process of lie detection does not rely upon a human, but instead a machine. Polygraph testing, which first developed in the 1920's and saw a dramatic increase in popularity in the 1930's (Grubin & Madsen 2005), is currently utilized in many areas of investigation. The process, which is designed to test for elevated respiratory and circulatory functions as well as increases in perspiration is still not considered to be a scientifically proven method to efficiently test for the presence of deception. Although it is not fully trusted, polygraph testing is often considered to be the most reliable and methodical tool for detecting deception in law enforcement to date. The polygraph examination represents the most trusted and widely accepted method for lie detection to date.

**Interpersonal Deception Theory.** If training doesn’t necessarily add proficiency to lie detecting, then how can future law enforcement agencies place individuals in positions to detect lies and expect them to determine a lie on an efficient basis? One interesting finding involves the IDT (Interpersonal Deception Theory) which states that individuals often
overestimate their own efficiencies in detecting lies, regardless of their actual effectiveness (Heam 2006). The IDT states that one of the largest contributing factors to this differentiation between confidence and actual ability is the fact that individuals don’t recognize that they may not possess the ability to efficiently detect a lie in the first place, and yet still have high confidence in their ability (Heam 2006). Therefore, the IDT suggests that the first step for new negotiators and investigators to take is to recognize that they may not possess any natural ability in lie detecting that they may expect. IDT will be explored within the current study through acknowledging the confidence levels of the participants. The significance of the IDT within an interrogation setting revolves around the investigators confidence within their decisions. Investigators and researchers alike must recognize that there is no certainty when attempting to identify the presence of a lie, regardless of their own confidence.

**Cognitive Load Theory.** Cognitive load theory explores how an increase or decrease in the amount of stimuli and processing which one's cognition must complete may affect the degree in which specific actions become more evident in an individual's behavior. Psychological researchers Aldret Vrij, Pär Granhag, Samantha Mann, and Sharon Leal explore how an increase in cognitive load may make the lie detection process more effective in their study "Outsmarting the Liars: Toward a Cognitive Lie Detection Approach" (Vrij et al. 2011). Cognitive load, as proposed by the research, can be used as a tool to increase the effectiveness of judgments of deception. The theory suggests that due to an increase in cognitive load the individual who is attempting to deceive his or her observers will be less able to mask their verbal and non verbal behavior indications of lying. By essentially "distracting" the deceiver with more complex questioning and an increase in stimuli, the cognitive load theory looks to
allow unintentional indications to flow more freely from the deceivers behavior given their decrease in attentive behavioral filters. For instance, the question "Where were you last night" would likely yield low cognitive load allowing the deceiver to answer the question with masked behaviors, and therefore making it more difficult for investigators to pick up on the deception. On the other hand, asking a slew of questions like "Who were you with last night?", "What car were you in last night?", "What intersections did you pass?", "What did you eat?", "What time did you leave your house?", "Where were you last night?" in that order and in rapid succession will place a higher cognitive load on the deceiver, thereby making his or her deceptive behaviors more obvious. Essentially, the cognitive load theory states that if a suspect or subject is overwhelmed with questions concerning great detail, which he is required to lie about, there is an increase in likelihood he will display some form of behavior "leakage" which would indicate his lie (Vrij et al. 2011). For instance, if cognitive load is applied to a suspect during an interrogation, the investigators could anticipate that the likelihood of a nonverbal indication of a lie surfacing in the suspect's behavior would increase (Inbau 2005). As proposed by this theory, any increase in cognitive load on the deceiver will likely be advantageous to future efforts in exploring how to better recognize attempts of deception.

**Summary: Specific Techniques.** Not all research agrees that non verbal communication is a reliable source to determine a lie since a modest amount of research has been applied to specific cues, such as gaze aversion (Vrij 2008). Similarly, previous research has indicated on the whole that often our ability to detect a lie is no more reliable than a chance guess (Kassin & Fong 1999). With confounding opinions on how reliable non verbal indications of lying are as well as how effective people may be on recognizing these indications, the field is
in need for more research on the subject. The current study looks to further the research on
the topic in order to contribute to a better understanding of how lie detection may be
understood. For a quick reference of the current theories and techniques as previously
discussed, address the quick reference table, table 1.

**Table 1: Quick Reference for Theories and Techniques**

<table>
<thead>
<tr>
<th>Theory or Technique</th>
<th>Primary Author</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reid Technique</td>
<td>F.E. Inbau 2005</td>
<td>Is the current technique which law enforcement agencies across the world currently teach their investigators to follow. Utilizes recognition of both verbal and non verbal cues of deception.</td>
</tr>
<tr>
<td>IDT (Interpersonal Deception Theory)</td>
<td>J. Heam 2006</td>
<td>Highlights the separation between the confidence that people have in detecting deceit and their actual ability.</td>
</tr>
<tr>
<td>Polygraph Testing</td>
<td>D. Grubin 2005</td>
<td>The current, and most widely utilized, methodical method to detecting lies. Evaluates changes in respiration, perspiration, and circulatory systems.</td>
</tr>
<tr>
<td>Cognitive Load Theory</td>
<td>A. Vrij 2011</td>
<td>With an increase in cognitive load (or over stimulation of cognitive abilities), the deceiver's ability to mask their behavior will decrease.</td>
</tr>
</tbody>
</table>

**The Current Study**

The current study looks to better understand these natural abilities of lie detection by exposing individuals who are part of the general public and have received no training concerning lie detection to a deception and then measuring their abilities to successfully detect a lie. Can people pick up on non verbal cues of deception above a 50/50 guess, and is their confidence in their judgment higher than a neutral position?
Participants

Participants of this study were recruited from the pool of students enrolled in a general psychology class who were required to participate in the current research for course credit. The subject pool was drawn from a small liberal arts college located in the south suburbs of Chicago. The 39 participants consisted of 15 males and 24 females who ranged in age from 18 to 27 years old.

Materials

Video Vignettes. A series of short video vignettes were created for this project. The actors who were portrayed in the vignette as accused criminals were sourced from the college's theatrical department and volunteered for the position. The actors are named Tanner Smale and Adrian Rivera and are currently enrolled in the College's theater program. The actors were two males in their early twenties. The facilities at both the psychology building as well as the college's bookstore were set as stages which the actor would play their role. The college's campus safety officer and vehicle were also temporarily utilized. Permissions were granted by all participating parties.

The two actors were summoned to meet a researcher early in the morning at the psychology office to begin filming. A classroom was set up prior to the actor's arrival in a manner which would be suggestive of an interrogation room. Only a table and two chairs stood in the middle of the room, and the backdrop yielded no simulative value. The lights in the room were dimed so that the only lights in the room were on the "interrogation" table.
The first actor was brought in (while the second was left in the office), and asked a series of questions involving the faux theft of a hoodie. For this situation, neither of the actors were briefed on how they should act during questioning. The actor was alerted that he was under suspicion for stealing a hoodie from the campus bookstore. He was then asked to fill out a written statement that highlighted what he had done that morning. In this first interrogation, the actor was told to be truthful (although would have to make up some items in order to not acknowledge the study) concerning what he had done that morning. Once the written statement was filled out (roughly five minutes), the experimenter re entered to take the written statement and began filming. While the experimenter exited and evaluated the written statement in order to guide the future questions, the actor was filmed waiting in order to capture a "base" behavior. The experimenter then re entered (after roughly five minutes) to begin the actual interrogation process.

Questions which the actor was asked surrounded a mock crime involving the theft of an article of clothing from the college's bookstore. The questions included: What did you eat for breakfast this morning, where were you at the time of the theft, what is your eye color, did you see anyone suspicious, and did you steal the hoodie, amongst many others. Additional questions surrounded the specific statements made within the written statement document. The entire interrogation process (inside the room) was approximately 15 minutes in length.

Following the filming of this first interrogation, the actor was then brought to the college bookstore and asked to go in and "steal" a specific hoodie which was placed there by the experimenter. They were also asked to conceal the garment from view and attempt to evade
discovery from the employees in an effort to reproduce and mimic a real theft. The actor is prompted to deny the entire instance and asked to attempt to convince everyone involved that they did not commit theft. The bookstore and campus security were warned in advance so no real charges are applicable. Following the actor's exit from the bookstore with the stolen item, a campus security officer approached the actor and asks them questions concerning the theft. They are then told that they will be brought to the "station" and were read their Miranda rights. The officer "arrests" the actor utilizing real handcuffs and places them the back of a college squad car and transports them half a mile to the interrogation room. The officers leave the actor handcuffed and in the back seat for a 5 minute period while they fill out fake arrest paperwork in the front seat to further ensure a priming effect on the actor. No conversation takes place between actor and officer other than questions and answers which concern the crime in question.

The actor was then brought back to original interrogation room and sat at the table. Just prior to filming the handcuffs are removed (total time while being handcuffed is just over 15 minutes), and the interrogation begins. The same questions as asked before are asked once again as the interrogation session number two takes place. Following the filming, the actor is debriefed and told that he has committed absolutely no crime, is told that he is free to go, and thanked for his efforts. The same process as demonstrated in the first actor will be repeated for the second actor.

**Video Editing.** Utilizing the college's video editing and rendering equipment, the four differing interviews (two per actor) were reviewed and combined into one DVD film which
could be shown during the second stage of the study. The format in which the interrogations were edited showed one interrogation after another so that there were only a small break between scenes. There were four separate DVDs which organized the scenes into differing orders to ensure that there were no biases involving the order in which the scenes were shown. The total length of the DVD including response times was just under 27 minutes, where each interrogation scene lasting roughly 6 minutes and 30 seconds including one minute in the beginning of each scene depicting the actor sitting and waiting for the interrogator (in order to establish a base behavior). DVD’s can be produced by request for review and reproduction for future studies.

Methods

Detecting Lies

Participants showed up for testing and entered the classroom which was prepared for viewing of the vignettes prior to their arrival. The subjects sat down and awaited further instructions until the study began. They were then issued informed consent sheets along with the response sheets. They then were given a brief synopsis of the situation and were told to act as "police investigators trying to find the suspect". They were told a hoodie was stolen from the bookstore and two people were apprehended. The subjects were also told that the order of the participants had no relation to their actual status of guilty or innocent. At the conclusion of the brief synopsis, the researcher began the film and observed the participants. At the conclusion of each scene, the DVD was paused and the participants were given roughly 1 minute to respond to each scene. Once the entire DVD and responses were completed, the
researcher collected the response sheets, issued the debriefing forms, and dismissed the
participants. For each experimental session, the order of the actors within the DVD was varied.
This is represented in Table 2 (page 20).

This section of the study took place in a regular 20 seat classroom in the psychology building
located at the college. Utilizing subjects from the research pool of psychology students, the
DVD which was produced from section one of the study was viewed on a projection screen in
the front of the classroom. The subjects signed up for time slots in groups of ten people per
session. Once they arrived and were seated and prepared, an informed consent was
distributed. Following the collection of the informed consent, the materials for the study were
distributed which included a pencil or pen and the scoring sheet. Brief instructions were then
read about the upcoming DVD and situation. They were told that two differing individuals were
apprehended for theft and interrogated immediately after the crime. The participants were
told to watch each scene and then following the scene were to mark down on the scoring sheet
if they felt the individual was guilty of the crime (because they were lying about their
innocence) or innocent (because they were telling the truth about their innocence). During the
allotted response time the participants would write if they felt the individual was guilty or not,
as well as mark how confident they were with their decision on a likert scale (1 -9). This process
would be repeated for all four different scenes, so we would be able to attain four judgments of
guilt or innocence and four rankings of confidence from each participant. Following the study,
the scoring sheets were collected and the debriefing forms were distributed. The participants
were then told that they were free to go and asked not to repeat the test material to anyone
outside the experimental condition. A total of eight sessions were completed yielding
anywhere from nine to a single participant(s) per session. Please see Table 2 (page 20) for a layout of conditions and actors per DVD.

**Table 2: Condition Layout per DVD**

<table>
<thead>
<tr>
<th>DVD 1</th>
<th>Scene 1</th>
<th>Scene 2</th>
<th>Scene 3</th>
<th>Scene 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Actor 2:</td>
<td>Actor 1:</td>
<td>Actor 2:</td>
<td>Actor 1:</td>
</tr>
<tr>
<td></td>
<td>Innocent</td>
<td>Innocent</td>
<td>Guilty</td>
<td>Guilty</td>
</tr>
<tr>
<td>DVD 2</td>
<td>Actor 1:</td>
<td>Actor 2:</td>
<td>Actor 2:</td>
<td>Actor 1:</td>
</tr>
<tr>
<td></td>
<td>Innocent</td>
<td>Guilty</td>
<td>Innocent</td>
<td>Guilty</td>
</tr>
<tr>
<td>DVD 3</td>
<td>Actor 2:</td>
<td>Actor 1:</td>
<td>Actor 2:</td>
<td>Actor 1:</td>
</tr>
<tr>
<td></td>
<td>Guilty</td>
<td>Innocent</td>
<td>Innocent</td>
<td>Guilty</td>
</tr>
<tr>
<td>DVD 4</td>
<td>Actor 1:</td>
<td>Actor 2:</td>
<td>Actor 1:</td>
<td>Actor 2:</td>
</tr>
<tr>
<td></td>
<td>Innocent</td>
<td>Guilty</td>
<td>Guilty</td>
<td>Innocent</td>
</tr>
</tbody>
</table>

* Actor 1: Tanner Smale & Actor 2: Adrian Rivera

** "Guilty" suggests that the actor is lying and was actually guilty of the crime while "innocent" suggests that the actor is telling the truth and is not guilty of the crime.

**Coding of Non-verbal Behavior**

For the purpose of the current research, effective techniques in lying will be limited to the actors' demonstration of specific nonverbal behavior. These nonverbal behaviors included four differing movements, postures, and physical dynamics which at some point have been believed to indicate a lie by previous research (Vrij 2008, Inbau et al.. 2005, Ekman 2009, Navarro 2008). The four nonverbal indicators are self adapters (general fidgeting and touching), illustrators (using extremities to speak and emphasize), general trunk adjustments (shifting in orientation), and "red zone" touching (Walters 1996). Red zone touching is described as the usage of a hand to "block" or briefly touch in the general vicinity of the chin, mouth, nose, or front of the face (Walters 1996). Two coders watched each video segment and recorded the number of
behaviors in each category. The behaviors which they coded for are operationally defined in Table 2.5 (page 21).

**Table 2.5: Operationally Defining Coded Non Verbal**

<table>
<thead>
<tr>
<th>Non Verbal Pattern</th>
<th>Operational Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptors</td>
<td>General Fidgeting and movements made by the subject which do not result in an overall position shift.</td>
</tr>
<tr>
<td>Illustrators</td>
<td>Using arms, hands, and head to emphasize the statements being made by the subject.</td>
</tr>
<tr>
<td>General Trunk Adjustments</td>
<td>Large movements made by the subject, primarily centered around the hips and orientation, which result in an overall position change.</td>
</tr>
<tr>
<td>Red Zone Touching</td>
<td>Touching (continuous or not) of the face, especially when directly blocking the mouth, nose, or chin area.</td>
</tr>
</tbody>
</table>

Coders were told that if an individual fidgeted, and adjusted posture three times, a check mark would stand next to the categories of "self adapter", and a check mark and two tallies would exist for "posture" for a total score of four (4). As this score increases (as nonverbal behavior which indicates a lie increases), the efficiency in the actors' ability to tell a lie is presumed to decrease. This process was done a total of three differing times in differing orders, by two different coders.

**Results**

**Actors' Non verbal Indications.** The totals of non verbal indications for each vignette were then averaged to acquire a final number for each scene. Actor 1 displayed an increase of five(5) non verbal indications of deception from his "innocent" scene to his "guilty"
scene. Actor 2 displayed an increase of four (4) indications of deception from his "innocent" scene to his "guilty" scene. Please reference Table 3 (page 22) to clarify how many total non-verbal indications of deception each scene had. A chi-square analysis of non-verbal indicators did not yield a significant difference between guilt and innocent scenes or between actors.

**Table 3: Non verbal Indication Differences per Scene**

<table>
<thead>
<tr>
<th></th>
<th>Scene 1</th>
<th>Scene 2</th>
<th>Scene 3</th>
<th>Scene 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DVD 1</strong></td>
<td><strong>Actor 2: Innocent</strong></td>
<td><strong>Actor 1: Innocent</strong></td>
<td><strong>Actor 2: Guilty</strong></td>
<td><strong>Actor 1: Guilty</strong></td>
</tr>
<tr>
<td></td>
<td>15 indications</td>
<td>8 indications</td>
<td>19 indications</td>
<td>13 indications</td>
</tr>
<tr>
<td><strong>DVD 2</strong></td>
<td><strong>Actor 1: Innocent</strong></td>
<td><strong>Actor 2: Guilty</strong></td>
<td><strong>Actor 2: Innocent</strong></td>
<td><strong>Actor 1: Guilty</strong></td>
</tr>
<tr>
<td></td>
<td>8 indications</td>
<td>19 indications</td>
<td>15 indications</td>
<td>13 indications</td>
</tr>
<tr>
<td><strong>DVD 3</strong></td>
<td><strong>Actor 2: Guilty</strong></td>
<td><strong>Actor 1: Innocent</strong></td>
<td><strong>Actor 2: Innocent</strong></td>
<td><strong>Actor 1: Guilty</strong></td>
</tr>
<tr>
<td></td>
<td>19 indications</td>
<td>8 indications</td>
<td>15 indications</td>
<td>13 indications</td>
</tr>
<tr>
<td><strong>DVD 4</strong></td>
<td><strong>Actor 1: Innocent</strong></td>
<td><strong>Actor 2: Guilty</strong></td>
<td><strong>Actor 1: Guilty</strong></td>
<td><strong>Actor 2: Innocent</strong></td>
</tr>
<tr>
<td></td>
<td>15 indications</td>
<td>19 indications</td>
<td>13 indications</td>
<td>8 indications</td>
</tr>
</tbody>
</table>

**Participant Accuracy and Confidence.** A z-test for proportions indicated that participant accuracy (62.82% hit rate) was significantly higher than chance (.50%), z(155)=3.205, p<.05. Additionally, a one sample t test indicated that participants had significantly higher confidence (65.52% confidence rating) than a neutral rating of 5, t(38)=4.307, p<.05. However, a Pearson correlation found no significant relationship between participants' accuracy of judgment and their confidence.

A hit analysis found that participant's accuracy in judgment and their confidence did not change over time. A one-way AVOVA analysis indicated that there was no significant difference in participant accuracy or confidence between the conditions. Similarly, a single sample t test
indicated that the participant sex had no significant effect on both their judgment accuracy or their confidence. A frequency analysis prompted many questions for future studies given the findings represented in Figure 3.

**Figure 3**

![Participant Accuracy Diagram]

**Discussion**

**Significance of Findings.** The primary goal of the current study was to explore the accuracy and ability of individuals attempting to recognize deception from actors' non verbal behaviors. Seeing as the results suggested that the participants recognized the deception on a significantly higher basis than just chance (50% guess), it is proposed that the participants recognized the specific differences in non verbal behavior between the actor's "innocent" and "guilty" scenes. Therefore, the hypothesis which stated that individuals would be able to recognize non verbal indications of lying (whether it be consciously or subconsciously) on an efficient basis (better than chance) is supported. Separately, the current study also looked to explore if the participants contained higher than neutral confidences in their judgments of innocence or guilt. Recognizing that the results of the study suggested that the participants did
in fact have significantly higher than neutral confidences with their decisions is important to understanding the current study's implications. Although both the participant's accuracy and confidence were both significantly higher than chance (50%) and neutral (5), there was no significant relationship between these two findings, which leads to questions as to why this is.

Aside from the primary findings of the study, other analyses yielded interesting discoveries. For instance, data suggested that the participants' accuracy and confidence did not significantly change overtime, which is contrary to what was anticipated. Researchers expected that as time of exposure and familiarity with the actor and their mannerisms increased, the participants' accuracy in judgments and their confidence in their decision would increase. However, as previously stated, there was no significant increase (or decrease for that matter) over time. Additionally, researchers found no significant difference in accuracy and confidence between the two sampled sexes. In order to check the validity of the test, researchers looked at the data to see if the order of the scenes or the scenes themselves yielded different rates of accuracy or confidence. Researchers found no significant difference in the participants' accuracy or confidence between the differing scenes. Although it can be hypothesized that there was a difference in the actors' ability to lie, there were no significant differences found between the four scenes.

**Implications: General.** The findings in the current study have significant implications not only within the realm of law enforcement, but also concerning lying in general. If participants were able to pick up on the minor non verbal behaviors and make the correct judgment concerning the actors' innocence or guilt without training, then one can hypothesize
that a natural ability to detect lies may potentially exist amongst the participants. However, the question of whether this judgment accuracy was the result of conscious efforts or subconscious recognitions is left to future studies. To acknowledge the fact that people are not only confident in their ability to detect deception but are also able to do so is certainly an interesting idea. However, the fact that there was no relationship (i.e. as the accuracy of a person goes up, their confidence goes up or vice versa) between accuracy and confidence suggests that individuals may not truly understand their own ability to detect deception. In this manner, individuals may want to "curb their enthusiasm" (confidence) concerning their ability to detect a lie because, as found in the current study, there is no causal relationship between their ability and their confidence. Additionally the idea that a male or female is no better at lie detection than the other goes against common understanding of a female's intuition and common ability to have "gut instincts" which may accurately judge another individual's behavior. Separately, the lack of significant differences in confidence and judgment accuracy over time discredits the common idea that with an increase in exposure to an individual, comes an increase in confidence and judgment accuracy due to the possession of a better understanding.

Regardless, the fact that the actor's non verbal indications were recognized by the participants and assisted them in making accurate judgments of deception goes against previous research which suggests otherwise. For instance, researchers Kassin and Fong found in their study, which followed similar parameters as the current study, that individuals even after training in lie detection were not able to identify the presence of a lie above a chance guess (Kassin & Fong 1999). This then suggests that potentially the increase and recognition of the actors non verbal behavior which was suggestive of deception may have been the key to the participants
Innocent Until Proven Guilty…or So You Thought

making accurate judgments of deception. In addition to the general implications of the current study's findings, there are also implications which are specific to the law enforcement sector.

**Implications: Law Enforcement.** Seeing as the primary goal of the current study was to explore if individuals can pick up on non verbal indications of deception above a chance guess within an interrogation setting, the current study has significant implications within the realm of law enforcement. For instance, the findings which were highlighted in Figure 3 (page 23) stated that 12.8% of the participants only had one correct response while 10.3% of participants had all 4 correct response yields interesting implications for future law enforcement investigators. Potentially, the difference in accuracy between the two groups may be attributed to a measurable difference in personality characteristics which law enforcement agencies could screen for in investigator candidates. Additionally, the current study reinforces current techniques of lie detection which law enforcement utilizes like the Reid Technique and Cognitive Load Theory. Given the fact that the current study utilized an interrogation environment as its setting, and the participants made judgments on the subject's (actor) truthfulness, the study's findings also has implications within a courtroom setting. For instance, similar non verbal behavior may be seen in testifying defendants within the courtroom. Jurors and judges alike may have to make judgments of deception, which may there in bias future judgments and evaluations of the subject's testimony. Separately, the results which suggested that participants had significantly higher confidences in their decision than just a neutral stance also has implications in law enforcement. Investigators may make claims like "I know he's guilty, I have a gut feeling", suggesting that they have high confidence in their judgment of deception. Although this aligns with the results of the current research, the lack of relationship
between participant's accuracy and their confidences suggests that a high confidence does not necessarily suggest high judgment accuracy. Therefore, even when an expert investigator states that he has a "gut feeling" or "intuition" that a subject is guilty, the current study suggests that placing automatic and unchecked confidence in his confidences is not suggested due to the lack of a causal relationship between an individual's confidence in their judgment and the actual judgment accuracy. In light of the vast implications in both the general sense as well as within the law enforcement setting, the current study should serve only as a stepping stone in a line of further research on the topic of non verbal behavior and its influence on judgments of deception.

**Limitations.** The current study certainly had several limitations which may have biased the results. Some of the limitations included the population which the data was collected. Seeing as the data represented a limited age range (18 - 27) as well as more females than males, the current findings may be less applicable to the general population than researchers desire. Additionally, a total of 12 of the 39 total participants said that they were familiar with at least one of the actors, which may have biased their view of the actor's non verbal communication or attempts to deceive. Furthermore, the fact that there were only 39 participants potentially limits the applicability of the findings to a much broader and general population. Another limitation of the current study involves the usage of actors. The differences in non verbal cues shown from the "innocent" to "guilty" condition were not shown to be significantly different from one another. In future studies, actors may be brought in and told to display specific non verbal communication within the "guilty" condition, while maintaining little to no non verbal communication in the "innocent" condition in order to widen
the gap in observable behavior. By not telling the actors to display specific behavior, we risked not finding significant differences in lying abilities between conditions, however increased the real world properties of telling a lie given the fact that some people (perhaps these actors), truly are gifted liars and do not depict huge differences in non verbal behavior when they are lying. Although the usage of videotaping real world people telling lies increases the external validity, it also can leave the actors actual ability to lie still in question. For instance, using videotapes may have contained more external validity than if pictures which showed actors demonstrating a single non verbal cue of deception. However, in the same example using pictures could potentially yield slightly more internal validity than if utilizing video, given the fact that in the video, extraneous indications and confounding variables were hard to limit, while in a picture they may be better controlled. In this light, the question of realism for participants becomes one of the main limitations of the current study. Researchers are unsure of if the videotapes really reproduced a real enough experience for the participants to claim the findings have complete external validity. Although the actors displayed more non verbal behavior more often in the "guilty" conditions than the "innocent" conditions, the other behaviors (both verbal and non verbal) which the actor displayed may have been confounding variables which may have diluted the significant findings. Future studies may look to address these limitations alongside providing new research concerning the subject.

**Future Studies.** Alongside the complexity which surrounds lie detection and deception processes comes the need for continued academic inquiries which build off of previous research such as the current study. For instance, as mentioned before, the limitations of this study serve as a premise for future studies to address. For instance, researchers may want to
increase sample sizes, utilize differing techniques of displaying deception, and apply different participant reporting techniques than utilized in the current study. One method of showing deception that future research could look into would be to utilize real footage or pictures of criminal interrogations where the subject was actually lying, similar to some of the techniques previous research used (Kassin & Fong 1999). Additionally, future research could address the issue of defining differences in ability of lie detection by looking at characteristics like age, education, race, sex, Emotional IQ (O'Sullivan 2005), etc. Specific to the law enforcement setting, future studies may want to look at lie detection within the courtroom setting, lying during initial questioning, and potentially how the subject matter of the interrogation may affect the subject's ability to lie. Separately, researchers can explore the presence of deception in contexts outside of the realm of law enforcement, such as relationships, in the sales setting, or in general employment settings. Another interesting contribution to understanding lie detection would address the international community and look for cultural differences in not only lying ability but also on individuals' ability to pick up on and recognize the lie. It becomes of the utmost importance to improve our understanding of lying, specifically in the law enforcement setting, due to our reliance on such abilities within criminal investigation settings. In any case, the potential for future research is limitless given the lack of complete understanding of such an interesting and common experience such as lie detection.

**Summary.** By looking at the topic of deception, specifically within the law enforcement setting, one can recognize that the issue involves many complexities which may not be currently understood, however our confidences and reliance on such abilities like lie detection
are vast. Previous research, which ranged from experimental studies to surveys, found no conclusive single means of detecting lies on a successful basis (Vrij 2008). However, many theories including the Reid Technique (Inbau 2005), Interpersonal Deception Theory (Heam 2006), and Cognitive Load Theory (Vrij 2011) suggest that under certain circumstances, nonverbal indications may reveal deception within a subject's statements. These theories and previous research provided the basis for the current study which looked to address if individuals could pick up on nonverbal indications of lying and if their confidence in their lie detection abilities would reflect their actual abilities. The current research found that individuals were able to detect the presence of deception on a significantly higher basis than a 50/50 guess. Additionally, the current research found that participants had significantly higher than neutral confidences in their abilities. However, no significant relationship was found between a participant's actual ability and their confidence in their ability. Discussion concerning the topic and current study surrounded mainly the implications and significance of the findings as well as how future research should address limitations and gaps in research within the field of deception and lie detection. Lie detection, specifically within the law enforcement context, is an incredibly important issue to explore considering the usage of such skills in achieving an advantageous and efficient enforcement methodology in current Police Departments nationwide. Research, such as the current study, is a step in the right direction to bettering our understanding of deception and lie detection for future law enforcement usage.
References


