Sex Differences in Deception Detection

Li Li
University of Miami, lili.l.xu@gmail.com

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SEX DIFFERENCES IN DECEPTION DETECTION

Li Li

Approved:

Thomas Steinfatt, Ph.D.
Professor of Communication Studies

Terri A. Scandura, Ph.D.
Dean of the Graduate School

Diane Millette, Ed.D.
Associate Professor of Communication Studies

Cong Li, Ph.D.
Assistant Professor of Advertising
While deception is a common strategy in interpersonal communication, most research on interpersonal deception treats the sex as irrelevant in the ability to detect deceptive messages. This study examines the truth and deception detection ability of both male and female receivers when responding to both true and deceptive messages from both male and female speakers. Results suggest that sex may be an important variable in understanding the interpersonal detection probabilities of truth and of lies. An interaction of variables including speakers’ sex, receivers’ sex, and whether the message is truthful or deceptive is found to relate to detection ability. Both women and men were found to be significantly less accurate than chance in judging the veracity of statements made by men, especially when those statements are lies. On the other hand, both women and men were significantly more accurate than chance in judging the veracity of statements made by women, especially when those statements are truthful. This may suggest that men are better deceivers than women, while women seem more transparent in exhibiting feelings about their messages whether being truthful or deceptive. In recalling real life deceptions discovered previously, women reported that they discovered significantly more lies from female sources than from men they knew. This finding may reflect the previous finding that discovering lies told by women is more likely than is discovering lies told by men.
For

My supportive family in China & my loving husband Terrence Xu
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Chapter 1

Introduction

This thesis examines the deception detection ability of both male and female receivers when responding to both true and deceptive messages from both male and female speakers. It does this by examining the relationship between sex of the source and the sex of the receiver in their ability to detect truthful statements and lies.

Deception is defined as a message knowingly transmitted by a sender to foster a false belief or conclusion by the receiver (Buller & Burgoon, 1996, p. 205). In essence of this definition, deception requires two features: one, the sender has a conscious intent to distort truth; two, the sender does not expect the receiver to know that the sender is deceiving. Hence, it rules out mistaken or unintended lies and transparent lies, where both the receiver and sender know the particular message is a lie. The most common forms of deception include white lies, cover-ups, bluffing, euphemisms, masks, pretenses, tall-tales, put-ons, hoaxes, and so on (Knapp & Comadena, 1979). Sutter (2009) adds that it will also be considered as deception if the sender expects that the receiver will not follow the sender’s instructions when the sender tells the truth. Bok, (1978) treats lying and deceiving as different concepts, but in this study, these concepts are treated interchangeably.

Deception is believed to be an adaptive behavior to natural selection (Knapp, Hart, & Dennis, 1974) and is essential for human survival (Kraut, 1980). Other scholars believe that deceiving is a common strategy frequently employed in interpersonal communication for purposes such as, acquiring goods and services, developing and managing satisfying relationships, or creating and managing a desired self-image (Buller
& Burgoon, 1994; Ekman, 1985; Turner, Edgley, & Olmstead, 1975; Wolk & Henley, 1970; Zuckerman, DePaulo, & Rosenthal, 1981). Although deception is usually a behavior that social references consider averse (Sanchez-Pages & Vorsatz, 2008), it has been argued that deception per se is not inherently unethical or immoral (Boush, Friestad, & Wright, 2009). It is the motive behind a particular lie that determines whether that lie is acceptable or not (Seiter, Bruschke, & Bai, 2002). Seiter et al. created different scenarios with nine most common motivations to lie and surveyed participants to list from most acceptable kinds of lies to the least. The results indicate that the most acceptable lies are lies for affiliation, followed by lies to benefit others, lies to protect privacy, lies to avoid conflict, lies to protect self, impression management, lies to benefit self without harming others. The two least acceptable kinds of lies are lies to benefit self while harming others and lies of malice. A global study done in 43 countries (Inglehart, Basanez, & Moreno, 1998) suggests a similar pattern, that other-oriented lies are more acceptable than self-oriented lies. In the study by Turner et al. (1975), it is found that most lies are white lies that are told to save faces (27.7%) or to avoid possible tension and conflicts (22.2%). White lies are lies that are told for a “good reason”, for instance, to prevent harm to others, to save other people’s face, or just to make people happy. This tendency is also observed in DePaulo, Kirkendol, Tang, and O’Brien (1988) research where the authors believe that everyday lies are mostly mundane ones, with little or no serious consequences on both sides.

Acts of deception has recorded in every culture (Lewis & Saarni, 1993). In a massive Reader’s Digest poll (Kalish, 2004), 93% of participants report one or more dishonest acts at their work or school. Also 93% admit lying in the market place.
However, according to this poll, the largest proportion of admitted deception occurred in communication with family and friends, where 96% of participants admit deceptive acts. Among the lies to family members (parents), it is suggested that most of the lies were about money, alcohol/drugs, friends, dating, parties, and sex (Jensen, Arnett, Feldman, & Cauffman, 2004). While among the lies to friends or other people, an anonymous study with college student subjects suggest that a significant 92% of participants have reported that they once told lies to current or potential sex partners (Knox, Schacht, Holt, & Turner, 1993).

Regarding the general prevalence of deception, Turner et al. (1975) estimate that 62% of the statements in everyday general conversations have some form of information control that could be classified as deceptive. DePaulo and her colleagues employed a one week diary study to record people’s everyday communication, specifically deceptive communication (DePaulo, Kashy, Kirbendol, Wyer, & Epstein, 1996). Their record suggests that people tell approximately two lies per day on average and that approximately 20% to 33% of our daily interactions are deceptive. These data have received support in at least two other empirical studies (George & Robb, 2008; Hancock, Thom-Santelli, & Ritchie, 2004). With a similar one-week diary methodology, Hancock et al. (2004) observe 26% of our everyday communication involving some form of deception, while George and Robb (2008) estimate that 22% to 25% of our daily communication might be deceptive. Other than in everyday life setting, studies in business indicate that 25%-67% job applicants would falsify their resumes and attempt to justify those falsifications during job interviews (Prater & Kiser, 2002). Moreover, Levashine and Campion (2007) find that in 28% - 75% job interviews engage in deceptive
communication, and 90% of undergraduate job applicants they interviewed admit using some form of deception during job hunting.

Instead of focusing on finding a proportion of deceptive communication in real life, some scholars set out to examine the prevalence of deception by looking into the frequency of lies one person tells per day. As mentioned above, the classic DePaulo et al. (1996) study recorded approximately two lies per day per person. Data from many studies on frequency of lies per person per day fall near this number. Hample (1980) reports that people are likely to lie 13.3 times per week on average which is 1.9 times per day. Camden, Motley, and Wilson (1984) focus exclusively on white lies and average 16 times over a two week period, that will be, 1.14 white lies per day. Serota, Levine, and Boster (2010) report an average of 1.65 lies per 24 hour period. In addition to these studies with relatively close findings, other studies with different methods, produce very different numbers. For instance, Feldman, Forrest, and Happ (2002) shortened the study’s time to 10 minutes and observed a mean of 1.75 lies told by each subject within that 10 minute conversation. Assuming the time that people are communicating with others is during 8 hours on average day, Feldman et al.’s (2002) study suggests 10.5 lies per hour or 84 lies per that 8 hour day. Yet a study by Lippard (1988) recorded lies over a three week period and found a frequency of 4.2 lies per week, or 0.6 lies per day, substantially lower than in most other studies. Even though there is inconsistency across the number of lies people tell in a day, it is nevertheless consistent that deception is indeed common in life.

With deception so ubiquitous in everyday life, it might be reasonable to expect that people develop a competence in detecting liars because they have ample experience
in deceptive communications from both sides, either as liars or receivers of lies in everyday life. However, this does not appear to be the case. It is somewhat paradoxical to see that with deceptive behaviors so frequently practiced, few deceivers are detected. A meta-analysis of over 200 studies on lie detection suggests that the general accuracy of people as lie detector is only slightly better than chance: 54% in detecting both truth and lies accurately, 47% accuracy in lie detection, and a 61% in truth detection accuracy in a baseline of 50% lie situations (Bond & DePaulo, 2006). Aamodt and Custer (2006) published a similar meta analysis over 108 studies in the same year. Instead of treating the samples from each study as identical, Aamodt and Custer examined separately studies with student and citizen subjects and studies with professional lie catchers such as police officers, detectives, judges, and psychologists. They also report the little-better-than-chance-level accuracy phenomenon. Moreover, their study indicates that professional lie detectors are not superior in lie detection: the professional lie detector group achieved an accuracy of 55.51% (N=2685) while the student or citizen group was 54.22% accurate (N=11647). The difference between these proportions produces a Z = 1.21, which is not significantly different from no difference between the groups in detection ability, even with these very large sample sizes. Central Intelligence Agency secret agents comprise the only group whose deception detection accuracy has been found to be as high as 64.12%, significantly above the 50% chance level (Ekman & O’Sullivan, 1991). While Ekman and his colleagues (Ekman, O’Sullivan, & Frank, 1999) suggest that law-enforcement officials are likely to be superior lie detectors, DePaulo and Pfeifer (1986) found no significant difference in deception detection accuracy between federal law
enforcement and college students which supports the results of Aamodt and Custer (2006).

To explain why people can only do slightly better than chance in lie detection, scholars have looked at various factors that they believe might correlate with people’s ability in catching liars. Some argue that the primary reason for people’s low accuracy in lie detection is the hard-wired truth-bias in our mental process (e.g., Levine & Kim, 2010; Levine, Kim, Park, & Hughes, 2006; Levine, Park, & McCornack, 1999). Others examine specific variables in deceptive communication and believe that one’s personality, age, communication media, environment could have played significant roles when people are involved in deception (e.g., Christie & Geis, 1970; DePaulo, Lassiter, & Stone, 1982; Ekman & O’Sullivan, 1991; Levine, Park, & McCornack, 1999).

The purpose of this study, thus, is to explore possible effects of sex differences on people’s ability in detecting liars. Literature review of the current studies in deception detection will be presented in Chapter 2; specially, the oversight of sex differences in the area of deceptive communication will be noted as well.
Chapter 2
Literature Review

Chapter 2 reviews the published articles on deceptive communication in the area of interpersonal deception detection. As mentioned above, many studies have addressed possible correlates of people’s abilities in lie detection and why their accuracy at catching liars is a little better than chance. Among the available studies, truth bias and variables such as receivers’ personality, age, communication media, and environment have received the most attention. However, it is undeniable that the effects of sex differences have been constantly overlooked. The first indication of such an oversight is that the total number of studies with sex differences as a focus in deception detection is extremely limited in communication research area. The other indication of this oversight is that current studies on sex differences and the effects of deception detection usually come to mixed results, or even opposite. Detailed review of studies in deceptive communication and this oversight on sex differences in deception detection will be present as followed.

Truth Bias

Truth bias is the tendency of judging messages as “honest” independent of a given message’s actual veracity (Levine & Kim, 2010; Levine, Kim, Park, & Hughes, 2006; Levine, Park, & McCormack, 1999). It is believed that truth bias stems, in part, from innate and hardwired cognitive information processing systems (Levine & Kim, 2010). People are cognitive misers (Taylor, 1981; Taylor & Fiske, 1978; Wyer & Scrull, 1981) and they usually make decisions even without thinking (Kim & Ramesh, 1992; Millar &
Millar, 1997; Stiff, Tversky & Kahneman, 1974). Tversky and Kahneman (1974) reason that truth bias is one kind of brain’s heuristic rules where people always tend to make decisions based on simple rules that require the least cognitive efforts and memory storage during the process of complex valuation. This kind of heuristic rule (in this study, truth bias) has been argued to be rooted in the crucial premise of our everyday communication: other people are telling the truth most of the time (Bond & DePaulo, 2006; McCornack & Parks, 1986). Admittedly, it is essential that people have a certain degree of mutual trust of each other (Levine & Kim, 2010; Rotter, 1967). So far, the most convincing empirical proof for this perspective is from Gilbert and his colleagues (Gilbert, 1989; Gilbert, Krull, & Malone, 1990) whose research suggests that believing in others is a mental default activity where the human brain initially represents false information as truth during processing.

Meta analysis confirms that most people are truth-biased most of the time (Bond & DePaulo, 2006); however, the degree of truth bias varies depending on the situation, one’s mood, and one’s socialization experience. Buller, Strzyzewski, and Hunsaker (1991) report a tendency where people seem more truth biased in face-to-face communication contexts compared to mediated communication situation. While Burgoon, Stoner, Bonito, and Dunar (2003) suggested that the more people communicate with the liar, the more they become truth-biased. The finding is consistent with the prediction that when people develop their relationship with another person, they grow more trusting of that person (McCornack & Parks, 1986; Stiff, Kim, & Remash, 1992). In addition, mood also plays an important part in affecting people’s degree of truth bias: people are more likely to be truth-biased when they are in a happy mood (Forgas & East, 2008). One’s socialization
experience is also a very crucial determinant on how much one is truth biased (Boush, Friestad, & Wright, 2009). Boush et al. (2009) believed that people would develop a default belief about possible deception rates in any particular social domain based on their former experience or experience they know from other people. For instance, one might assume 60% of the conversation at a business dinner will be deceptive while 90% at a family dinner will be truthful; however, in general, the average assumed rate of truthfulness will be over 50%, thus resulting in a truth bias tendency as a whole. This is an innovative proposition although no empirical studies have been done to verify or disapprove it.

**Personality Effects**

Personality is one of the individual variables that have received the earliest and the most attention from scholars in deception studies. Machiavellianism is one of the first personality traits that scholars suggested might correlate with people’s performance in both deceiving and detecting deception. Machiavellianism (Mach) is defined as the tendency for people to employ any means, including deception, in order to manipulate others for personal gains (Christie & Geis, 1970). Christie and Geis (1970) conducted pioneer studies in designing self-report scales measuring people’s degree of Machiavellianism and their tendency to deceive or to engage in insincere motives. The two most frequently employed scales that later deceptive communication studies used to examine people’s ability in deceiving and detecting deception are Mach IV and Mach V. Using these scales, Geis and Moon (1981) found that higher score on Machiavellianism were associated with more convincing liars who were less likely to be detected. This tendency is replicated constantly in later studies (e.g., DePaulo & Rosenthal, 1979b;
Kashy & Depaulo, 1996) where people with higher Machiavellianism scores tended to lie more. However, DePaulo and Rosenthal (1979b) found that when it came to act as lie detectors, persons with high Mach scores are actually less accurate. They suggested that highly Machiavellian people might be too focused on their own manipulative purpose while ignoring discrepancy in other people’s behaviors.

Another personality trait that is believed to affect people’s ability in lie detection is self-monitoring (Snyder, 1974). Self-monitoring refers to the observation and control of one’s self-presentation and expressive behaviors in order to communicate accurately about true intentions or to conceal inappropriate emotion or reactions. High self-monitors are people who usually pay excessive attention to self-monitoring while low self-monitors pay less attention to monitoring their own behaviors. With these characteristics, scholars believe that high self-monitors should be more convincing when engaged in deception (Miller, deTurk, & Kalbfleisch, 1983; Riggio & Friedman, 1983) and should also be significantly more accurate in detecting lies than low self-monitors (Brandt, Miller, & Hocking, 1980; Geizer, Rarick, & Soldow, 1977).

A third proposed personality trait that some scholars believe to be related to people’s performance in deception detection is generalized communicative suspicion (Levine & McCormack, 1991). As a counterpart of truth bias, McCormack (1990) argued that there might be a lie bias where some people might have a perceptual presumption of dishonesty in society. People who hold state suspicion are more likely to identify their communication partners as more likely to be deceiving. In this sense, generalized communicative suspicion is defined as “a predisposition toward believing that the messages produced by others are deceptive” (Levine & McCormack, 1991, p. 328). This
hypothesis suggests that truth-bias might not be universal, and that certain people may have a less trusting outlook toward others than do most people (Cattell, 1956; Christie & Geis, 1970; Deutsch, 1958; Johnson-Geoge & Swap, 1982; Larzelere & Huston, 1980; Levine & McCornack, 1991; Rotter, 1967).

**Age Effects**

Other than personality, age is another individual difference that has received much attention and gained quite consistent conclusions concerning deception detection. Ekman and O’Sullivan (1991) found that age may have a curvilinear relationship to interpersonal lie detection. Individuals appear to increase in the ability to identify lies from childhood to early and middle adulthood. This ability starts to decline gradually with further aging (DePaulo, Jordan, Irvine, & Laser, 1982). DePaulo et al. (1982) find that all age groups from grade six to college have the ability to tell true feelings from fake feelings, although younger children tend to be more likely to be misled by overt fake affect. Older children may focus more on vocal cues than on visual cues when decoding possible deceptive messages (Piaget, 1962; Zuckerman, DePaulo, & Rosenthal, 1981).

**Media Effects**

The channel or medium through which people communicate may also influence people’s accuracy rate in deception detection (Bond & DePaulo, 2006). Different media have different characteristics. Media Richness Theory (Daft & Lengel, 1986) sees each communication medium as involving a unique degree of richness, measured by the speed of feedback, language variety, amount of personal focus, and the number of social cues transmitted with the message. According to Media Richness Theory, face-to-face is the richest communication medium, followed by telephone, instant messaging, and email.
Daft and Lengel (1984) predict that people would be most likely to lie through the richest medium (face-to-face) where equivocal communication (deception) can be more likely to succeed since face-to-face communication allows the speaker direct interaction, full monitoring, and immediate feedback. Nevertheless, the Social Distance Hypothesis predicts the reverse order (DePaulo et al., 1996; Hancock et al., 2004). These scholars (DePaulo et al., 1996; Hancock et al., 2004) reason that since deceiving would always make people uncomfortable, people would like to choose the medium where they would have the least possibility to be confronted and most convenience to get away. Thus, face-to-face communication will be the least favorite situation when people choose to lie while email nevertheless will be the ideal medium for deceiving.

Empirical data supported neither of the predictions: the highest rate of deception (lies per social interaction) is found to occur on phones while the lowest is in email (Hancock et al., 2004). DePaulo et al. (1996) studied communication through face-to-face, telephone, and written words, and the results indicate a related pattern: telephone conversations are the most likely to involve deceptive communication and face-to-face conversation is the least likely for deception.

Regarding which medium people have the best chance of catching a liar, previous studies provide relatively consistent results. Facial expressions and words are highly controllable (DePaulo, Lassiter, & Stone, 1982; Zuckerman, Amidon, Bishop, & Pomerantz, 1982; Zuckerman, Klorman, Larrance, & Spiegel, 1981). Body movements and voice, on the other hand, are most difficult to monitor and control (DePaulo, Lassiter, & Stone, 1982; Ekman & Friesen, 1969; Zuckerman, DePaulo, & Rosenthal, 1981). And people are most influenced by facial expressions and almost entirely ignore vocal cues
when communicating with liars (Bugental, Kaswan, & Love, 1970; Mehrabian & Ferri, 1967). Taken together, it implies that face-to-face communication should be the most difficult detection situation because people can distract the receivers with their faking facial expressions easily. Meanwhile, vocal-only media seem the most likely medium that will yield the highest deception detection accuracy since voices are most reliable cues for deception and least likely to be controlled. Data from studies support this prediction (e.g., Bugental, Kaswan, & Love, 1970; DePaulo, 1981; DePaulo, Kirkendol, Tang, & O’Brien, 1988; DePaulo, Lassiter, & Stone, 1982; DePaulo, Rosenthal, Eisenstat, Roger, & Finkelstein, 1978; Holzman & Rousey, 1966; Mehrabian & Ferri, 1967).

**Sex Effects**

Studies in communication with individuals’ sex as a central variable are limited. So far, only three such studies in the communication area have appeared (DePaulo, Esptein, & Wyer, 1993; Levine, McCornack, & Avery, 1992; McCornack & Parks, 1990). Levine and his colleagues addressed possible sex differences in emotional reactions toward discovered lies (Levine, McCornack, & Avery, 1992). Their study indicates that regardless of the lies’ content, targets, and relationship with the liars, women rate deception as more significant, more unacceptable, and reported significantly more negative emotional reactions toward discovered lies.

The other two studies (DePaulo, Esptein, & Wyer, 1993; McCornack & Parks, 1990) both investigate each sex’s performance in deception detection. Yet, results from these two studies are quite opposite. McCornack and Parks (1990) looked at romantic couples and the accuracy in detecting their spouses’ lies. This study recruited 55 couples who had dated for an average amount of 14.21 months (SD=13.89) and randomly
picked one from each couple as to become the detectors. The other one then would be assigned as the speaker. After the random assignments, detectors and speakers would be led to separate rooms. Each group was asked to do some questionnaires. However, only the speakers group would then be introduced to make a video clip and talk about their answers in the questionnaires. Instead of reporting truthfully, the speakers were asked to report half of the items truthfully while changing their answers on the other half in order to deceive. The video clips would then be presented to their partners and make them decide whether their spouse was truthful or not. The results suggest that women are inherently better lie detectors in romantic relationships, regardless of the level of the relationship development.

However, the similar study done by DePaulo and her colleagues suggests the opposite. Setting the interaction environment in an art gallery, DePaulo et al. (1993) asked 47 female and 47 male undergraduate students to view a display of art works in a gallery and asked them to pick two as their favorite and another two as their least liked. Afterwards, each subject was introduced to an art student who later claimed the author of a painting (one of the two least liked picked by the subject). Before being introduced to the art student, the subject was told that the art student did not know anything about their ratings. The conversation of each subject and the art student was video recorded. Some of the subjects lied while others did not. These video clips of the conversation would then be shown to another group of judges who had to decide if they believed what the subject said about liking the painting. According to the results in this study, female judges were more likely than males to believe the fake liking that the subjects showed. In other words, females were more likely to miss the liars.
Two additional studies have examined possible sex differences in deceptive behaviors (Dreber & Johanneson, 2008; Haselton, Buss, Oubaid, & Angleitner, 2005). One is from research in economics (Dreber & Johanneson, 2008). Dreber and Johanneson randomly designated anonymous pairs of people as sender and receiver. The receiver had two choices. Both choices involved real monetary results. Choice A would earn the sender 40 SEK (Swedish Kronors) and the receiver 50 SEK. Choice B gave the sender 50 SEK and the receiver 40 SEK. The sender had full knowledge of the results of the two choices. The receiver knew nothing about what would happen after choosing A or B. Before the receiver made the choice, the sender would have an opportunity to send a message to the receiver. Message A, (“Choice A will earn you more money”), is truthful. Message B, (“Choice B will earn you more money”), is deceptive. The receivers then had to choose whether to follow the sender’s instruction. A significantly larger proportion of men (55%) than women (38%) chose to lie with 75.4% of men and 76.8% of women complying with the message from the senders. No sex differences were found in people’s ability in identifying the liars.

The Haselton et al. study (2005) is similar to Levine, McCormack, and Avery’s (1992) focus. Haselton et al. (2005) investigated sex differences in emotional reactions toward various kinds of deception, specifically, in romantic relationships. Discussing deception in romantic relationships, the authors predicted and found that men and women, seeking long-term or short-term relationships, would have different patterns of emotional reactions toward different types of lies. For instance, seeking long-term relationships, men would be more upset if women lied about their fertility, but women would be more upset when men lied about their resource, status, and commitment, both before and after
having sex. When seeking short-term relationships, men found lies about age more upsetting, while women would be more upset with lies denying commitment to others.

Several additional studies touched on sex effects in deception detection while not studying them directly. Although results are mixed, most suggest that sex did not correlate with people’s ability in detecting deception (Aamodt & Custer, 2006; DePaulo & Rosenthal, 1979a; DePaulo, Kirkendol, Tang, & Obrien, 1988; Ekman & O’Sullivan, 1991; Levine & McCormack, 1991; Manstead, Wagner, & McDonald, 1986; Zuckerman, DePaulo, & Rosenthal, 1981). Other studies suggest possible sex differences in deceptive communication, often agreeing that women are superior at decoding nonverbal cues, thus implying that women might be better lie detectors (Hall, 1978; Rosenthal & DePaulo, 1979a, 1979b; Rosenthal, Hall, DiMatteo, Rogers, & Archer, 1979). However, DePaulo and her colleagues (DePaulo, 1981; DePaulo & Rosenthal, 1979b) report that women are more likely to read overt (fake) messages than covert (truthful) messages, especially when the fake message was positive. Other scholars predict that women are more obliged to be polite and supportive, hence they would rather ignore cues to deceptive behaviors (Crowne & Malowe, 1964; Rosenthal & DePaulo, 1979a, 1979b). This prediction was confirmed in studies where females were less accurate in detecting deception than males when the speakers on video clips were faking liking (DePaulo, Esptein, & Wyer, 1993; DePaulo, Jordan, Irvine, & Laser, 1982).

Regarding possible sex differences when acting as deceivers, some researchers believe that men are more effective liars (DePaulo, Stone, & Lassiter, 1985; Geis & Moon, 1981; Zuckerman, DePaulo, & Rosenthal, 1981) or that men will deceive more (Camden, Motley, & Wilson, 1984; Serota, Levine, & Boster, 2009). However, DePaulo
et al. (1996) recorded more lies from women in everyday life. But it seems that men may tell more outright lies (Carlson, George, Burgoon, Akins, & White, 2004).

**Rationale and Research Questions**

In conclusion, previous research in deceptive communication, especially research on deception detection, is quite limited in the number of studies that address possible sex differences. Moreover, even with the available data of women and men’s performance as lie detectors, results are still quite mixed. Scholars often reached the conclusion that people can only do slightly better than chance in deception detection, yet have overlooked the potential and possible effects that the sex of participants, both receivers and deceivers, can play in deceptive communication. This study attempts to fill in this gap by providing a central focus on the examination of sex as a variable in deception detection. Both the sex of speakers and the sex of receivers was studied to determine if they might influence people’s deception detection accuracy in interpersonal communication scenarios. Specifically, this study provides empirical tests guided by two sets of research questions. They are:

*RQ1: Which sex is overall better at detecting lies?*

In essence, Research Question 1 addresses a possible tendency whether people of a particular sex are superior at detecting deception in general. To find answers to Research Question 1, two sub-questions were further asked to serve as leading questions into final answers to Research Question 1. These two sub-questions are:

*RQ1a: What is the overall deception detection accuracy rate?*

*RQ1b: Are females better lie detectors than males overall?*
The other central research question in this study concerns performance of both males and females as deception detectors and how this might correlate with sex of the speakers:

\textit{RQ2: Are people better at detecting same-sex liars, or opposite-sex liars?}

\textit{RQ2a: Are females better at detecting female liars?}

\textit{RQ2b: Are males better at detecting male liars?}

\textit{RQ2c: Are females better at detecting male liars?}

\textit{RQ2d: Are males better at detecting female liars?}

The design employed to answer these research questions is discussed in Chapter 3.
Chapter 3

Methodology

The effect of speaker and receiver sex on the likelihood of detecting lies has received little attention in the literature on interpersonal communication. Chapter 3 presents the study design used to answer the research questions regarding sex difference effects on interpersonal lie detection of Chapter 2.

Design

Most of the research on deceptive communication (deception detection) employs a forced choice design, requiring each participant to decide whether a stranger speaking on a video clip was truthful or deceptive (Knapp & Comadena, 1979). However, it is commonly the case in human interaction that people are uncertain as to whether a given person is lying in a given situation, especially when information is as limited as from a stranger’s statement on a video clip. When multiple judges are involved, some people may be quite willing to offer an opinion, while others remain uncertain and hesitant. Levine and Kim (2010) have argued that it might be this type of experimental design employed in most of the deceptive communication studies that affected people’s accuracy rates to be around chance level. In the present study, participants were allowed a choice of “Uncertain.” Whenever participants were not certain enough, for instance, because they were not really listening to the speaker, they could choose “Uncertain” as a neutral position in this particular case. This allows research participants to self select their ability to detect lying in each specific case. The research question then becomes whether a person’s confidence in lie detection in a given instance is related to their actual ability to detect lies in that instance.
A 2 x 2 x 2 experimental design was employed. Speakers’ sex (female/male), receivers (participants) sex (female/male), and message veracity (truthful/deceptive) served as three sets of independent variables. While the receivers’ decisions after viewing eight video clips (truthful/uncertain/deceptive) and their confidence level whenever their decision is not “Uncertain,” serve as the dependent variables. For instance, if one chose -2 on the scale, it means that this participant believed that the speaker on the video clip was deceptive and the confidence level of this participant’s decision was confident.

Participants

Ninety-seven undergraduate students at a university in the Southern United States participated as judges in this study, recruiting from a large public undergraduate course in Communication. Of the 97 participants, 28.9% (28/97) were male and 71.1% (69/97) female. Further in this sample, 49.5% identified themselves as Caucasian Americans, 16.5% as Hispanic Americans, 14.4% as African Americans, 10.3% as Asians, while the other 9.5% participants chose “Other” as their ethnicity. Both male and female participants’ average age was 19.0, with a slightly larger variation in females (Range =17 to 26, SD = 1.76) than in males (Range = 17 to 24, SD = 1.56).

Materials

Video clips. The video clips employed in this study were retrieved from a video record database created by Tim Levine in 2007 with funding from the National Science Foundation. This database has been utilized in a number of published studies (e.g., Levine, Serota, & Shulman, 2010; Levine, Shaw, & Shulman, 2010a, 2010b).

To produce these videos, undergraduate subjects recruited from a large Northern university played a trivia game for a cash prize with a partner, a confederate who knew
the purpose of the study. All subjects were provided with the opportunity to cheat and were encouraged to do so by their partner. After the trivia game, participants were interviewed and videotaped. Participants were told that the interview was about the role of teamwork. Each interview involved the same 10 questions asked by the same female interviewer. The first three questions asked were about prior experience with teamwork and playing trivia games. These questions were warm-up questions. The next two questions asked were about how difficult the interviewees saw the questions in the trivia game. From Question 6, the interviewer started to probe the interviewee’s performance in the game, and if cheating had occurred, if the participant answered honestly, and about what the person’s partner would say when he or she was interviewed. All subjects decided for themselves whether or not to cheat, and if they cheated, whether or not to lie; hence, the lies were completely unsanctioned. As indicated above, deception was most likely to occur from Question 6; thus, the video clips used in this study included only the part starting from when the interviewees were answering Question 6 through Question 10.

Eight video clips in total were randomly selected from the database for this study. The use of these video clips has been acknowledged and permitted by Tim Levine.

**Questionnaire.** A short questionnaire was employed in this study, consisting of two parts. The first part of the questionnaire measured participants’ evaluation of each speaker’s honesty on the video clips; while the second part concerned participants’ demographic information and their general attitudes toward everyday deceptive communication.

Among cover-up questions in the first part of the questionnaire, the participants were asked about their perception of the speakers’ honesty on the video. After watching
one speaker’s video clip, the video was paused and participants were asked to rate
speaker’s honesty on a seven-point scale (-3 to +3), 0 as undecided, +1 to +3 as honest,
whereas -1 to -3 as dishonest.

In the second part of this questionnaire, participants were asked about their
demographic information and their general ideas about deception in everyday life. To
protect participants’ privacy, the questionnaire did not include probing of the
participants’ personal information that could possibly lead to their identification. Specific
design of the questionnaire is attached as Appendix A.

Data Analysis

The accuracy rate in this study was calculated as the proportion of correct answers
out of all whose answers were other than “Undecided” when rating the honesty of the
speakers. The equation is:

\[
\text{Accuracy} = \frac{\text{Number of Correct Judges}}{\text{Total Number of Judges} - \text{Number of Judges Who Chose Undecided}}
\]

Data were analyzed using the test of significance for an empirical proportion
compared with a hypothetical proportion of .5 (Blalock, 1972, pp. 193-197). Tests of
significance comparing two independent empirical proportions employed the test of
difference between independent proportions (Blalock, 1972, pp. 228 - 230). Power of the
tests was computed from Cohen (1977, pp. 160-161, for differences from a hypothesized
0.5; pp. 194-195, for differences between proportions) using his suggested small, medium,
and large effect sizes for proportions as reference points.

Results obtained though the implementation of the design presented in this
chapter are discussed in Chapter 4.
Chapter 4

Results

Chapter 4 presents the results of the methods discussed in Chapter 3. Data are presented in order from overall accuracy rate across all conditions, to specific accuracy levels when interplaying with judges’ sex, speakers’ sex, and the messages’ veracity.

**Deception Detection Accuracy across All Conditions**

The 97 participants responded to a total of 775 judgments of the video speakers, 8 judgments per respondent, with one missing judgment. They expressed confidence in 636 of their judgments of the truth or falsity of the video speakers, 342 of which were accurate and 294 incorrect for an overall accuracy rate of 0.538. Using 0.5 as an expected value and Blalock’s test for the significance of a single proportion from hypothesized value (1972, pp. 160-161), \( Z = 1.917, p < .0552 \), which is near but less than \( p = .05 \) significance. The 0.5 as expected value is appropriate based on the null assumption of an equal probability of any judge with confidence in the judgment selecting either of two choices on each of the items, truth or lie.

The power to detect a medium or greater effect size as an empirical proportion different from .5, with \( N=636 \) and alpha set at .05 two tailed is greater than .995 (Cohen, p.161). Power \( \approx .69 \) for Cohen’s small effect size, which is slightly larger than his standard for small ES definitions. Thus, employing the entire data set, the assumption that a truth bias effect was not greater than Cohen’s small effect size is reasonable. Small effects may go undetected, implying the need for replications and a cumulative larger \( N \), so conclusions based on this data set should be considered preliminary.
Male versus Female Judges’ Performance. Of the 97 judges, 28 were male and 69 female. Male judges were accurate on 96 of 186 judgments, an accuracy rate of 0.516 (Z < 1), and female judges were accurate on 246 of 450 judgments, an accuracy rate of 0.547 (Z = 1.99, p < .0047, and the difference between the two judge gender rates is not significant (Z < 1). Power = .98 for medium ES, and .99 for large ES.

Honest versus Deceptive Statements

The 97 participants judged 317 honest statements and 319 lies. Judges were accurate on 211 honest statements, an accuracy rate of 0.667 (Z = 5.91, p < .0000001), and on 131 lies, an accuracy rate of 0.411 (Z = -3.179, p < .000739, power ~=.995, medium ES). The rate difference is significant (Z = 6.48, p < .0000001; Blalock, difference of proportions, 1972, pp. 228 – 230).

Male Judges’ Performance. The 28 male judges were accurate on 58 of 96 judgments of honest statements, an accuracy rate of 0.604 (Z = 2.04, p < .0413), and on 38 of 90 judgments of deceptive statements, an accuracy rate of 0.422 (Z = -1.48, p < .1389). These accuracy rates for male judges are significantly different for honest and deceptive statements (Z = 2.48, p < .013). Power = .85 medium ES, .99 large ES.

Female Judges’ Performance. The 69 female judges were accurate on 153 of 221 judgments of honest statements, an accuracy rate of 0.692 (Z = 5.71, p < .0000001), and on 93 of 229 judgments of deceptive statements, an accuracy rate of 0.406 (Z = -2.84, p < .0045). The accuracy rates for female judges are significantly different for honest and deceptive statements (Z = 6.09, p < .0000001).

Table 1 provides results concerned with females’ and males’ performance in identifying honest and deceptive statements.
Table 1. Participant Accuracy in Judging Honest and Deceptive Statements

<table>
<thead>
<tr>
<th>Participant Judges</th>
<th>Honest Statements</th>
<th>Deceptive Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female Judges</td>
<td>0.692***</td>
<td>0.406**</td>
</tr>
<tr>
<td>Male Judges</td>
<td>0.604*</td>
<td>0.422</td>
</tr>
<tr>
<td>Combined</td>
<td>0.667***</td>
<td>0.411**</td>
</tr>
</tbody>
</table>

*p < 0.05 ** p < 0.01 *** p < 0.0001

Male versus Female Speakers

The 97 participants judged 309 times from male speakers and 327 times from female speakers. Judges were accurate on 122 of the male’s statements, an accuracy rate of 0.395 (Z = -3.69, p < .00011), and on 220 of the female’s statements, an accuracy rate of 0.673 (Z = 6.25, p < .0000001). Power ~=.995 for a medium or larger ES. These accuracy rates are significantly different for male and female sources (Z = 7.03, p < .0000001).

Male Judges’ Performance. The 28 male judges were accurate on 34 of 93 judgments of men’s statements, an accuracy rate of 0.366 (Z = -2.58, p < .0099), and on 62 of 93 judgments of women’s statements, an accuracy rate of 0.667 (Z = 3.22, p < .0013). Power = .84 medium ES, .99 large ES.

Female Judges’ Performance. The 69 female judges were accurate on 88 of 216 judgments of men’s statements, an accuracy rate of 0.407 (Z = -2.73, p < .0063), and on 158 of 234 judgments of women’s statements, an accuracy rate of 0.675 (Z = 5.35, p < .0000001). Power = .99, medium or more ES.

Table 2. Accuracy Rates for Female and Male Speakers

<table>
<thead>
<tr>
<th>Participant Judges</th>
<th>Female Speakers</th>
<th>Male Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female Judges</td>
<td>0.675***</td>
<td>0.407**</td>
</tr>
<tr>
<td>Male Judges</td>
<td>0.667***</td>
<td>0.336**</td>
</tr>
<tr>
<td>Combined</td>
<td>0.673***</td>
<td>0.395**</td>
</tr>
</tbody>
</table>

** p < 0.01 *** p < 0.0001
Table 2 presents male and female participants’ accuracy rates in truth and deception detection when judging female and male speakers.

**Honest versus Deceptive Statements from Male versus Female Speakers**

The 97 participants judged 636 statements, 309 statements from male presenters and 327 from female presenters. Judges were accurate on 85 of 162 honest statements made by men, an accuracy rate of 0.525 (Z < 1), and on 126 of 155 honest statements made by women, an accuracy rate of 0.806 (Z = 7.62, p < .0000001). On deceptive statements, judges were accurate on 37 of 147 statements made by men, an accuracy rate of 0.252 (Z = -6.01, p < .0000001), and on 94 of 172 statements made by women, an accuracy rate of 0.547 (Z = 1.23, p < .218). For honest statements, the accuracy rate on statements made by women is significantly greater than for statements made by men (Z = 5.29, p < .0000001). For deceptive statements, the accuracy rate on lies told by men is significantly lower than for lies told by women (Z = 5.34, p < .0000001). Power = .99, medium or greater ES.

**Male Judges’ Performance.** The 28 male judges were accurate on 35 of 46 honest statements made by women, an accuracy rate of 0.761 (Z = 3.54, p < .0004), and on 23 of 50 honest statements made by men, an accuracy rate of 0.46 (Z < 1). The 28 male judges were accurate on 27 of 47 deceptive statements told by women, an accuracy rate of 0.574 (Z = 1.01, p < .3124), and on 11 of 43 deceptive statements by men, an accuracy rate of 0.256 (Z = -3.20, p < .0014). Power = .56 medium ES, .95 large ES.

**Female Judges’ Performance.** The 69 female judges were accurate on 91 of 109 honest statements made by women, an accuracy rate of 0.835 (Z = 6.99, p < .0000001), and on 62 of 112 honest statements made by men, an accuracy rate of 0.554 (Z = 1.14, p
< .2542). The 69 female judges were accurate on 67 of 125 deceptive statements told by women, an accuracy rate of 0.536 (Z < 1), and on 26 of 104 deceptive statements told by men, an accuracy rate of 0.25 (Z = -5.10, p < .0000001). Power = .93 medium ES, .99 large ES. The data on accuracy rates for honest and deceptive speakers are presented in Table 3.

**Table 3. Accuracy Rates for Honest and Deceptive Speakers**

<table>
<thead>
<tr>
<th>Participant Judges</th>
<th>Female Honest</th>
<th>Female Deceptive</th>
<th>Male Honest</th>
<th>Male Deceptive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>0.835***</td>
<td>0.536</td>
<td>0.554</td>
<td>0.25 ***</td>
</tr>
<tr>
<td>Male</td>
<td>0.761***</td>
<td>0.574</td>
<td>0.46</td>
<td>0.256***</td>
</tr>
<tr>
<td>Combined</td>
<td>0.806***</td>
<td>0.547</td>
<td>0.525</td>
<td>0.252***</td>
</tr>
</tbody>
</table>

*** p < 0.0001

Participants were asked to rate their confidence level when making their decisions. The data are presented in Table 4.

**Table 4. Average Confidence Levels by Accurate Judges**

<table>
<thead>
<tr>
<th>Participant Judges</th>
<th>Female Honest</th>
<th>Female Deceptive</th>
<th>Male Honest</th>
<th>Male Deceptive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female Judges</td>
<td>1.91</td>
<td>2.06</td>
<td>2.00</td>
<td>1.77</td>
</tr>
<tr>
<td>Male Judges</td>
<td>1.74</td>
<td>1.63</td>
<td>1.96</td>
<td>1.09**</td>
</tr>
</tbody>
</table>

** p< 0.01

To determine if previous life experience with deceptive communication might have affected participants’ judgments in this test, this study also asked participants’ how frequently they had uncovered a lie in past interpersonal communication and the sex of the source of that lie. The results are presented in Table 5 and Table 6.

**Table 5. Sex of Speakers With More Discovered Lies**

<table>
<thead>
<tr>
<th>Participant Judges</th>
<th>Female Speakers</th>
<th>Male Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female Judges</td>
<td>0.623*</td>
<td>0.377*</td>
</tr>
<tr>
<td>Male Judges</td>
<td>0.571</td>
<td>0.429</td>
</tr>
</tbody>
</table>

* p < 0.05
Participants were also asked who they expected to lie more frequently to them. The results are presented in Table 6.

<table>
<thead>
<tr>
<th>Participant Judges</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female*</td>
<td>0.552</td>
<td>0.448</td>
</tr>
<tr>
<td>Male</td>
<td>0.464</td>
<td>0.536</td>
</tr>
</tbody>
</table>

*Missing data from 2 participants.

The meaning of the results presented in Chapter 4 for the research questions is discussed in Chapter 5, along with limitations, suggested future research, and conclusions.
Chapter 5

Discussion

This study addressed deception detection by looking into possible interplay of the speaker’s sex and the receiver’s sex, and thereby the effects of such interplay on receivers’ accuracy on detecting lies or truth. Contrary to the view that sex has little relationship to the study of interpersonal deception and interpersonal deception detection, significant sex effects appeared in the form of greater lie and truth detection in messages from women, and significantly less lie and truth detection in messages from men, indicating men may be better deceivers than women, while women may be more transparent with more cues concerning their veracity.

As indicated from results presented in Chapter 4, the general truth-lie accuracy rate across this study is slightly but not significantly above chance at .538, which is consistent with previous studies on deceptive communication where deception detection rates are fairly around the 54% rate (Bond & DePaulo, 2006). A Truth bias is also suggested, as participants were 66.7% accurate on honest statements while just 41.1% accurate on deceptive statements, both of which are statistically significant.

Hence, as to answer Research Question 1, there seem no significant sex differences as in general accuracy rates in deception detection. Again, this replicates the a-little-better-than-chance-level phenomenon in deception detection. Given the overall judgment sample size of 636 (Power = .995 or above for a medium or greater ES), the opportunity exists for a substantial truth bias effect to surface if it were present. The lack
of significance for this effect suggests that truth bias alone is not sufficient to explain significant results within conditions. Between male and female participants, females did slightly better than male judges at differentiating liars and truth-tellers, with females at 54.7% accuracy rate and males at 51.6%. Again, this difference is not statistically significant, suggesting that male judges and female judges in general do not have a dramatic difference in their abilities at detecting a liar or identifying a truth-teller. This result is consistent with most of the previous studies reviewed above (e.g., Aamodt & Custer, 2006; DePaulo, Kikendol, Tang & Obrien, 1988; DePaulo & Rosenthal, 1979; Ekman & O’Sullivan, 1991; Levine & McCormack, 1991; Manstead, Wagner, & McDonald, 1986; Zuckerman, DePaulo, & Rosenthal, 1981).

Truth bias is also found in this study when looking further at participants’ separate performance on honest and deceptive statements (66.7% accuracy on honest statements and 41.1% accuracy on deceptive statements, see Table 1). Both male and female judges did better when detecting honest statements, 60.4% accuracy for males and 69.2% accuracy for female. However, this difference is not statistically different. Although both accuracy levels are well above chance, it seems that females are more truth-biased than the males. When it comes to deceptive statements, both male and female’s performances are below chance level. However, females’ accuracy level was statistically significant (60.4%) while male’s (42.2%) was not. This implies that females may be more truth-biased and this tendency is significant.

If this study stopped with these results and ceased looking further into possible effects caused by the interplay of speaker’s sex and the truthfulness of the statements, this study too would have concluded that there would be no significant sex differences in
deception detection. However, this study went further. Details of findings indicating significant correlations between speakers’ sex and the judges’ accuracy rates as well as correlation between messages’ veracity and its effects on judges’ accuracy will be presented below.

As suggested, males and females are almost equally truth-biased in general and neither of them seem to have a special gift in detecting lies from truthfulness. Yet, looking at data from Table 2 in Chapter 4, an interesting tendency behind this phenomenon is suggested. At face value, Table 2 indicates that males may have posed more difficulties for the judges while female speakers seemed more transparent. A majority of the judges (67.3%) were correct on their decisions regarding female speakers’ statements whereas a significantly smaller proportion of the judges (39.5%) were accurate in judging males’ true intentions. This pattern is also found respectively in both male judge groups and female judge groups. And the differences are clearly significant by statistical test.

Nevertheless, if the data are further analyzed by examining speaker’s sex and truthfulness of the message as two sets of independent variables, the effects of speakers’ sex on viewers’ perception and how it correlated with the truthfulness in the speech may be more apparent (Table 3). First, when the female speakers were honest, a statistically significant majority of female and male judges in this study made accurate judgments and believed that the honest female speakers were indeed telling the truth (80.6% accuracy in general), with 83.5% of the female viewers and 76.1% of the male viewers accurate. Second, accuracy in judging of the performance of females who lied dropped to near chance level (54.7% accuracy across sexes). About 53.6% of female viewers and 57.4%
of male viewers were accurate, neither of which was significant. Judges appear to do about as well as chance in catching female liars. It may be that people are less truth biased when they are interacting with deceptive females.

The results are different when the speakers were male. When males were honest, the accuracy rates were not significantly different from chance, while they were significantly different when the females were honest. Overall, 52.5% of the judges were correct in identifying male truth-tellers. While women’s measured accuracy proportion was larger (55.4%) than males (46%) in identifying male truth-tellers, the difference was not significant. With men as deceivers, accuracy rates fell dramatically with only about one in four judges accurate (25.2% across sexes, with females at 25%, and males at 25.6%). This pattern might indicate that people are extremely truth-biased when males are telling lies, more truth-biased even than when males are indeed telling the truth. Or, it could indicate actual differences in detection probabilities under these conditions.

Therefore, to answer Research Question 2 as a conclusion, when men lie, the chances of catching them were very slim in the data of this study. Neither men nor women are skilled at detecting male liars. But both female and male judges were far more accurate than chance when detecting female truth tellers. It is possible that previous studies yielding around-chance-level accuracy in judging deception may relate to two factors: transparent female speakers (especially female truth-tellers) and difficult male speakers (especially male deceivers). When deception detection results are summed across sex of source and again across sex of receiver, the results in the data of this study indicate little more than chance in the detection of deception and truth telling. But when
results are analyzed by source and receiver sex, sex differences in the judgment of deception become apparent.

The confidence of judges’ in their own decisions was measured. As shown in Table 4, average female confidence scores were higher than males’ scores in each category. It is interesting to point out that when male judges were viewing male deceivers, the judges’ confidence level is significantly lower than that in any other conditions. Although female judges’ confidence level in their judgments of deceptive males is not significantly different from levels in the other three categories, it is lower than average female confidence scores in the other three categories. This suggests that male judges, and possibly female judges, may have been aware on some level of the difficulty they were having in accurately predicting deception among deceptive males. This may partly explain why both male and female judges’ accuracy rates on detecting male deceivers were close to 25%.

To probe if previous life experience might have affected people’s perception of a certain sex’s honesty, participants were asked about their previous experience about deception. According to the data presented in Table 5 and Table 6, there seem no effects of one’s experience on his/her accuracy and how much one would expect lies from a particular sex. Table 5 shows that female participants in this study reported significantly more discovered lies from female speakers (62.3%). But male judges did not experience a significant difference in the sex of liars from their previous experience. Based on this pattern, it might be reasonable to infer that female participants would expect more lies from females while males might not have such biases. The data from the follow-up probe was in the correct direction but was not statistically significant.
Indeed, as data in Table 6 indicate that some female participants expected more lies (55.2%) from females than from males (44.8%). However, males report that they would still expect more lies from males (53.6% versus 46.4% from females). Although the differences in both categories are not significant, it is interesting to point out that males still trusted females though they recognized being deceived more by females.

Moreover, as suggested in this study, only about one in every four male deceivers were caught after they lied, meaning 75% of the male liars (or males’ lies) remained undetected. This might partially explain the seemingly contradictory patterns. Although males discover fewer lies from their sex, males may recognize it is not because males indeed lie less than the females but because males less frequently are caught after they deceive.

**Innovations and Limitations**

This study offered several innovations in studying interpersonal lie and truth detection. First, it allowed the judges an “uncertain” choice to avoid forcing them to make decisions even if the judges did not have enough confidence or information to do so. One reason for this design is because people may be hesitant to make immediate yes-or-no decisions on someone’s truthfulness during or right after the interactions (Park, Levine, McCormack, Morrison, & Ferrara, 2002). Second, this study analyzed data from participants who stated an opinion that a given speaker was either Somewhat Honest to Very Honest, or Somewhat Dishonest to Very Dishonest. Data from participants who indicated they could not make a judgment of honesty or dishonesty was not analyzed. Thus these results apply only to participants who stated an opinion regarding honesty or dishonesty. Third, it focused primarily on possible sex differences in deceptive
communication, specifically, deception detection. Instead of just examining the receiver’s sex and its effects on deception detection accuracy, this study addressed the interplay of the receivers’ sex and the speakers’ sex and how this interaction might affect the accuracy in deception detection. By taking this step further, therefore, this study yields results indicating significant effects that previous studies have not examined.

Finally, a limitation of this study is the disproportion of participants’ gender. This was a consequence of the pool of volunteers for the study. Only 28.9% of the participants were male, leaving the data from male viewers under-represented. Additionally, the average age of the participants is young (19.0) and further studies are needed to recruit a sample with more diverse age groups thus to determine whether the age of the sample would further interplay with each sex’s accuracy in deception detection.

**Suggestions for Future Research**

This study provides an initial attempt to address possible sex differences in deception detection activities. Although this study did yield interesting results, replicating studies are needed in order to establish or reconstruct the findings in this particular trial. Experiments that attempt to replicate this study may consider employing more diverse samples (i.e., diverse occupations, broader age range, and more ethnic categories) to apply the results to a larger population.

Future studies might also look at what make men less likely to be caught when lying or why women seem more transparent when lying. Research may start at examining different communication styles of these two genders and how they affect men and women in their deceptive behaviors and deception detection.
Future research can also study what make people more likely to tell the truth and if there will be sex differences in the preferences. Since men and women are motivated differently in social behaviors, it would also be likely that motives for telling the truth vary across men and women.

**Conclusion**

This study examines the truth and deception detection ability of male and female receivers when responding to true and deceptive messages from both male and female speakers. Although the differences between females’ and males’ ability at detecting truthfulness or deception were not significant across all conditions, the difference is significant under specific conditions. Females may be significantly more transparent than the males, especially when females are being honest. The chance of detecting a female truth-teller was as high as 80%. On the other hand, males’ deception behavior appears more difficult to detect: the chance of detecting a male liar was as low as around 25%. Therefore, it might be reasonable to infer that previous studies yielding around-chance-level accuracy might be caused by two factors: high accuracy rate on transparent female speakers (especially female truth-tellers) and low accuracy rate on difficult male speakers (especially male deceivers).


Appendix A

Questionnaire

Do *Not* turn any page or begin to mark on any page until you are instructed to do so.

We are going to show you eight brief video clips of people students who are talking about their performance on a task with another person. After you view each one, we want you to rate the person who is speaking on several items. These include:

Poise  (confidence)
Honesty  (did they seem truthful)
Persuasiveness  (did you believe them)

After each video, please rate the speaker you just saw, on each of the six items above. Do this by putting an X in the space closest to your opinion.

Example

For example, if you thought the person’s Poise was better than average, but not what you would call “good,” then you might mark an X in the space below “Somewhat Good” as shown below.

<table>
<thead>
<tr>
<th>Very Poor</th>
<th>Somewhat Poor</th>
<th>Poor</th>
<th>Somewhat Average</th>
<th>Good</th>
<th>Very Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>_________</td>
<td>_________</td>
<td>_______</td>
<td>_________</td>
<td>_______</td>
<td>_________</td>
</tr>
</tbody>
</table>

Or, if you thought the person’s Poise was neither good nor poor, then you might mark an X in the space below “Average” as shown below.

<table>
<thead>
<tr>
<th>Very Poor</th>
<th>Somewhat Poor</th>
<th>Poor</th>
<th>Somewhat Average</th>
<th>Good</th>
<th>Somewhat Good</th>
<th>Very Good</th>
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</thead>
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</table>

Any questions?

Again

Do *Not* continue to the next speaker until you are instructed to do so.
Speaker 1

On each of the three items below, please rate the seated person you just saw in the video by putting an X in the space closest to your opinion. Please do this now for each of the items below.

### Honesty
(did they seem truthful)

<table>
<thead>
<tr>
<th>Very Dishonest</th>
<th>Dishonest</th>
<th>Somewhat Dishonest</th>
<th>Neither</th>
<th>Somewhat Honest</th>
<th>Honest</th>
<th>Very Honest</th>
</tr>
</thead>
<tbody>
<tr>
<td>_______</td>
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<td>_______</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
</tbody>
</table>

### Persuasiveness
(did you believe them)

<table>
<thead>
<tr>
<th>Not at All</th>
<th>No</th>
<th>Not Much</th>
<th>Could not Tell</th>
<th>A Little</th>
<th>Yes</th>
<th>Completely</th>
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<td>_______</td>
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</tbody>
</table>

### Poise
(confidence)

<table>
<thead>
<tr>
<th>Very Poor</th>
<th>Poor</th>
<th>Somewhat Poor</th>
<th>Average</th>
<th>Somewhat Good</th>
<th>Good</th>
<th>Very Good</th>
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</tbody>
</table>

*Please circle one of the five responses to the two questions below concerning the previous speaker:*

**At what point did you make the above decision?**
A. when I first saw the person   B. when the person was talking   C. after the person finished   D. when I saw the question   E. I cannot recall

**What made you decide if this person was being honest?**
A. the person’s voice   B. the person’s face   C. the person’s way of speaking   D. the person’s movements   E. I cannot recall
**Speaker 2**

On each of the three items below, please rate the seated person you just saw in the video by putting an X in space closest to your opinion. Please do this now for each of the items below.

**Honesty**
*(did they seem truthful)*

<table>
<thead>
<tr>
<th>Very Honest</th>
<th>Dishonest</th>
<th>Somewhat Honest</th>
<th>Neither</th>
<th>Somewhat Dishonest</th>
<th>Honest</th>
<th>Very Dishonest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**Persuasiveness**
*(did you believe them)*

<table>
<thead>
<tr>
<th>Not at All</th>
<th>No</th>
<th>Not Much</th>
<th>Could not Tell</th>
<th>A Little</th>
<th>Yes</th>
<th>Completely</th>
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</tr>
</tbody>
</table>

**Poise**
*(confidence)*

<table>
<thead>
<tr>
<th>Very Poor</th>
<th>Poor</th>
<th>Somewhat Poor</th>
<th>Average</th>
<th>Somewhat Good</th>
<th>Good</th>
<th>Very Good</th>
</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>

Please circle one of the five responses to the two questions below concerning the previous speaker:

**At what point did you make the above decision?**
A. when I first saw the person  B. when the person was talking  C. after the person finished  D. when I saw the question  E. I cannot recall

**What made you decide if this person was being honest?**
A. the person’s voice  B. the person’s face  C. the person’s way of speaking  D. the person’s movements  E. I cannot recall
Speaker 3

On each of the three items below, please rate the seated person you just saw in the video by putting an X in space closest to your opinion. Please do this now for each of the items below.

<table>
<thead>
<tr>
<th>Honesty</th>
<th>(did they seem truthful)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Dishonest</td>
<td>Dishonest</td>
</tr>
<tr>
<td>Somewhat Dishonest</td>
<td>Somewhat Honest</td>
</tr>
<tr>
<td>Neither Honest</td>
<td>Honest</td>
</tr>
<tr>
<td>Very Honest</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Persuasiveness</th>
<th>(did you believe them)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at All</td>
<td>No</td>
</tr>
<tr>
<td>Not Much</td>
<td>Could not Tell</td>
</tr>
<tr>
<td>A Little</td>
<td>Yes</td>
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<td>Completely</td>
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</table>

<table>
<thead>
<tr>
<th>Poise</th>
<th>(confidence)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Poor</td>
<td>Poor</td>
</tr>
<tr>
<td>Somewhat Poor</td>
<td>Average</td>
</tr>
<tr>
<td>Somewhat Good</td>
<td>Good</td>
</tr>
<tr>
<td>Very Good</td>
<td></td>
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</tbody>
</table>

Please circle one of the five responses to the two questions below concerning the previous speaker:

At what point did you make the above decision?  
A. when I first saw the person  B. when the person was talking  C. after the person finished  D. when I saw the question  E. I cannot recall

What made you decide if this person was being honest?  
A. the person’s voice  B. the person’s face  C. the person’s way of speaking  D. the person’s movements  E. I cannot recall
On each of the three items below, please rate the seated person you just saw in the video by putting an X in space closest to your opinion. Please do this now for each of the items below.

### Honesty
(did they seem truthful)

<table>
<thead>
<tr>
<th>Very Dishonest</th>
<th>Dishonest</th>
<th>Somewhat Dishonest</th>
<th>Neither</th>
<th>Somewhat Honest</th>
<th>Honest</th>
<th>Very Honest</th>
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</table>

### Persuasiveness
(did you believe them)

<table>
<thead>
<tr>
<th>Not at All</th>
<th>No</th>
<th>Not Much</th>
<th>Could not Tell</th>
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</table>

### Poise
(confidence)

<table>
<thead>
<tr>
<th>Very Poor</th>
<th>Poor</th>
<th>Somewhat Poor</th>
<th>Average</th>
<th>Somewhat Good</th>
<th>Good</th>
<th>Very Good</th>
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</tr>
</tbody>
</table>

Please circle one of the five responses to the two questions below concerning the previous speaker:

**At what point did you make the above decision?**
A. when I first saw the person  B. when the person was talking  C. after the person finished  D. when I saw the question  E. I cannot recall

**What made you decide if this person was being honest?**
A. the person’s voice  B. the person’s face  C. the person’s way of speaking  D. the person’s movements  E. I cannot recall
On each of the three items below, please rate the seated person you just saw in the video by putting an X in space closest to your opinion. Please do this now for each of the items below.

### Honesty
*(did they seem truthful)*

<table>
<thead>
<tr>
<th>Very Dishonest</th>
<th>Dishonest</th>
<th>Somewhat Dishonest</th>
<th>Somewhat Honest</th>
<th>Honest</th>
<th>Very Honest</th>
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<tbody>
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### Persuasiveness
*(did you believe them)*

<table>
<thead>
<tr>
<th>Not at All</th>
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<th>Could not Tell</th>
<th>A Little</th>
<th>Yes</th>
<th>Completely</th>
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<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

### Poise
*(confidence)*

<table>
<thead>
<tr>
<th>Very Poor</th>
<th>Poor</th>
<th>Somewhat Poor</th>
<th>Average</th>
<th>Somewhat Good</th>
<th>Good</th>
<th>Very Good</th>
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</tr>
</tbody>
</table>

*Please circle one of the five responses to the two questions below concerning the previous speaker:*

**At what point did you make the above decision?**

A. when I first saw the person  
B. when the person was talking  
C. after the person finished  
D. when I saw the question  
E. I cannot recall

**What made you decide if this person was being honest?**

A. the person’s voice  
B. the person’s face  
C. the person’s way of speaking  
D. the person’s movements  
E. I cannot recall
On each of the three items below, please rate the seated person you just saw in the video by putting an X in space closest to your opinion. Please do this now for each of the items below.

**Honesty**  
(did they seem truthful)

| ________     ________      ________     ________      ___ |
| ________      ________      ________     ________      ___ |

**Persuasiveness**  
(did you believe them)

| ________     ________      ________     ________      ___ |
| ________      ________      ________      ________      ___ |

**Poise**  
(confidence)

| ________     ________      ________     ________      ___ |
| ________      ________      ________      ________      ___ |

*Please circle one of the five responses to the two questions below concerning the previous speaker:*

**At what point did you make the above decision?**
A. when I first saw the person  
B. when the person was talking  
C. after the person finished  
D. when I saw the question  
E. I cannot recall

**What made you decide if this person was being honest?**
A. the person’s voice  
B. the person’s face  
C. the person’s way of speaking  
D. the person’s movements  
E. I cannot recall
Speaker 7

On each of the three items below, please rate the seated person you just saw in the video by putting an X in space closest to your opinion. Please do this now for each of the items below.

Honesty
(did they seem truthful)

<table>
<thead>
<tr>
<th>Very Dishonest</th>
<th>Dishonest</th>
<th>Somewhat Dishonest</th>
<th>Neither</th>
<th>Somewhat Honest</th>
<th>Honest</th>
<th>Very Honest</th>
</tr>
</thead>
<tbody>
<tr>
<td>___</td>
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<td>___</td>
</tr>
</tbody>
</table>

Persuasiveness
(did you believe them)

<table>
<thead>
<tr>
<th>Not at All</th>
<th>No</th>
<th>Not Much</th>
<th>Could not Tell</th>
<th>A Little</th>
<th>Yes</th>
<th>Completely</th>
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<tbody>
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<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
</tbody>
</table>

Poise
(confidence)

<table>
<thead>
<tr>
<th>Very Poor</th>
<th>Poor</th>
<th>Somewhat Poor</th>
<th>Average</th>
<th>Somewhat Good</th>
<th>Good</th>
<th>Very Good</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

Please circle one of the five responses to the two questions below concerning the previous speaker:

At what point did you make the above decision?
A. when I first saw the person  B. when the person was talking  C. after the person finished  D. when I saw the question  E. I cannot recall

What made you decide if this person was being honest?
A. the person’s voice  B. the person’s face  C. the person’s way of speaking  D. the person’s movements  E. I cannot recall
Speaker 8

On each of the three items below, please rate the seated person you just saw in the video by putting an X in space closest to your opinion. Please do this now for each of the items below.

|_______|_______|_______|_______|_______|_______|_______|
|Honesty| (did they seem truthful)

|Very Dishonest| Dishonest| Somewhat Dishonest| Neither| Somewhat Honest| Honest| Very Honest|
|_______|_______|_______|_______|_______|_______|_______|

|Persuasiveness| (did you believe them)

|Not at All| No| Not Much| Could not Tell| A Little| Yes| Completely|
|_______|_______|_______|_______|_______|_______|_______|

|Poise| (confidence)

|Very Poor| Poor| Somewhat Poor| Average| Somewhat Good| Good| Very Good|
|_______|_______|_______|_______|_______|_______|_______|

Please circle one of the five responses to the two questions below concerning the previous speaker:

At what point did you make the above decision?
A. when I first saw the person  
B. when the person was talking  
C. after the person finished  
D. when I saw the question  
E. I cannot recall

What made you decide if this person was being honest?
A. the person’s voice  
B. the person’s face  
C. the person’s way of speaking  
D. the person’s movements  
E. I cannot recall

Thank You, this completes the video clips

Only a few more questions now and you are done.

Please turn the page now
General Questions

(Please fill in or circle one response to each of the items below)

1. Your age: ____________________________

2. Are you:  Male  female

3. Your ethnicity:  
A. Caucasian  B. African American  C. Asian  D. Native American  E. Hispanic F. Pacific Islander  G. Other

4. Think of all the people in the world who are currently talking with others.  
   What percentage would you assume that people are telling lies at any one time?  
   0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%  
   |______|______|______|______|______|______|______|______|______|______|______|

5. Think of people you have talked to today.  
   In what percentage of those conversations would you assume that the conversation contained lies?  
   0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%  
   |______|______|______|______|______|______|______|______|______|______|______|

6. Think of your life experience in the last year, which gender would you say lied to you more?  
A. Male  B. Female  C. I do not recall being lied to in the past year

7. What category of people would you say are most likely to be lied to?  
A. family  B. romantic relationship friends  C. close friends  D. acquaintance  E. strangers

8. What category of people would you say you are most likely to lie to?  
A. family  B. romantic relationship friends  C. close friends  D. acquaintance  E. strangers

9. Can you recall telling a lie today?  
A. Yes  B. No  C. Can’t remember

10. If you answered “Yes” to Question 9, which category of lies would yours be in?  
A. A lie to benefit others, with no significant consequences  
B. A lie to benefit others, with significant consequences  
C. A lie to benefit both me and the others, with no significant consequences  
D. A lie to benefit both me and the others, with significant consequences  
E. A lie to benefit me only, with no significant consequences  
F. A lie to benefit me only, with significant consequences

11. When talking to others, do you usually have questions like “Is she/he lying” in your mind?  
A. Yes  B. No  C. Can not remember
12. If you answered “Yes” to Question 11, with whom are you usually speaking when you wonder if the person might be lying? A. family  B. romantic relationship friends  C. close friends  D. acquaintance  E. strangers

That’s it. You have finished the questionnaire.

If your instructor is giving extra credit for participation in this project please remember to write your name on the sheet provided for your communication instructor’s use in giving any extra credit agreed to. **Do NOT write your name or any identifying information on this questionnaire.**

Thank you for your participation!