

## Detecting Deception in Client Inquiries: A Review and Implications for Future Research

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### I. INTRODUCTION

Client inquiries provide a wealth of information to auditors throughout the audit process. Nevertheless, the interactive nature of client inquiries can leave auditors susceptible to client deception, and therefore requires that auditors exhibit professional skepticism in order to reduce the likelihood of being deceived. This article summarizes extant literature on deception as it relates to client inquiries and suggests avenues for future research.

Professional skepticism, which accounting standards define as “an attitude that includes a questioning mind and a critical assessment of audit evidence,” is critical to the auditing profession (Public Company Accounting Oversight Board [PCAOB] 2010a, AU 230.07). In fact, SAS No. 1 (American Institute of Certified Public Accountants [AICPA] 1997) specifies that professional skepticism is a requirement of due professional care (PCAOB 2010a, AU 230.07). Recent reports by the PCAOB indicate that audit deficiencies and audit failures are the result of a lack of professional skepticism (PCAOB 2008; 2012b), which implies that audit firms should endeavor to promote the use of professional skepticism by their personnel.

The PCAOB further states that “while professional skepticism is important in all aspects of the audit, it is particularly important in those areas of the audit that involve significant judgment....” Furthermore, the PCAOB asserts that “professional skepticism is also important as it relates to the auditor’s consideration of fraud in the audit” (PCAOB 2012b, 3-4). As

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demonstrated in the following section, many areas of the audit that most require professional skepticism are particularly well-suited to the use of client inquiries, which occur when audit personnel meet with members of client management or other employees to gather additional information pertaining to the audit.

The need for professional skepticism during client inquiries is particularly high because there are some instances when client management might purposefully mislead auditors in an effort to conceal questionable activities. Professional guidance advises accountants to attend to management or employees' behavioral characteristics during inquiries that may indicate the use of deception, including both the client's verbal responses and physical behavior (AICPA 2002; CICA 2000). However, most auditors have not been trained to detect deception. Furthermore, several studies outside of the audit setting indicate that individuals generally perform poorly when trying to detect deception in face-to-face communication (Miller and Stiff 1993), and one study suggests that auditors are no exception (Lee and Welker 2008). Perhaps the PCAOB's findings of insufficient skepticism on the part of auditors (PCAOB 2008; 2012b) are further evidence that auditors are unable to determine when management is being deceptive.

Given the importance of deception detection to the audit, and the few related studies appearing in the literature, further research is called for. The purpose of this article is twofold. First, this article provides a synthesis of academic literature that has examined deception detection, with an emphasis on those studies that have implications for client inquiries, and suggest research topics that can be examined to further extant knowledge. Second, this article examines a recent phenomenon of the auditing environment; i.e., that client communications are increasingly being conducted via electronic media. Therefore, this article also examines how the

use of computer-mediated communication to conduct client inquiries may change deception and its detection.

The remainder of this article is organized as follows: The next section presents a brief summary of the auditing standards governing client inquiries. Section III discusses the major findings on general deception detection from the communications literature, and section IV reviews relevant studies on detecting deception in the accounting literature as it relates to the auditing profession. Section V examines how the increased use of computer-mediated communication in the audit field may affect the ability of auditors to detect deception, and Section VI concludes the article.

## **II. CLIENT INQUIRIES**

The use of client inquiries is common practice in the audit profession and can be used to gather information throughout the audit. The AICPA dictates that auditors must comply with three standards of fieldwork when conducting an audit; namely, audit work must be appropriately planned, auditors must gain an understanding of the client's internal controls, and auditors must gather sufficient evidence on which to base the audit opinion (PCAOB 2010b, AU 150). Ariail *et al.* (2010) describe how client inquiries play a critical role in the auditor's ability to comply with all three standards of fieldwork. Below, is a brief synopsis of the accounting standards governing the use of client inquiries.

The first standard of fieldwork, which regards planning the audit, entails establishing an overall strategy that will guide the development of the audit plan (PCAOB 2012a, AS 9.8). The nature and extent of planning activities is contingent on several factors; including previous knowledge of the client's internal controls, economic conditions affecting the client's industry, and changes in the client's operations (PCAOB 2012a, AS 9.7). Though not explicitly required

for general planning purposes, client inquiries can be a valuable source of information for auditors as they complete the initial audit planning.

Another important function of client inquiries during the planning process relates to identifying and assessing the risk of material misstatements. The PCAOB requires that the auditor make inquiries to the audit committee, management, internal auditors, and other employees regarding the potential for material misstatements, including those that are the result of fraud (PCAOB 2010c, AS 12.54). These inquiries are to include questions related to employees' knowledge of actual, alleged, or suspected fraud; the identification of fraud risks, and the controls utilized by the client to address fraud (PCAOB 2010c, AS 12.55-12.57). The information gathered during these inquiries is another important input to the audit planning process.

The second standard of fieldwork states that the auditor must gain a sufficient understanding of internal controls to both plan the audit and determine the nature, timing, and extent of audit tests to be performed (PCAOB 2010b, AU 150). According to the PCAOB, client inquiries can be useful for the auditor in determining whether an internal control is designed effectively, and whether the internal control has been appropriately implemented (PCAOB 2010c, AS 12.20). In addition, inquiries may assist auditors as they perform walkthroughs, which can enable auditors to understand the processing of company transactions (PCAOB 2010c, AS 12.37).

According to the third and final standard of fieldwork, auditors need to gather sufficient evidence to support an audit opinion. Governing standards state that evidence can be gathered through "inspection, observation, *inquiries*, and confirmations" (PCAOB 2010b, AU 150, emphasis added). While the use of inquiries is beneficial to auditors during many phases of the

audit, it is perhaps most useful as auditors collect audit evidence on which to base an audit opinion. Often, the collection of audit evidence can lead to questions or concerns related to account balances and audit assertions. In these instances, it may be necessary to talk to the client to gain increased understanding and clarity. In the case of complex management judgments, unusual transactions, and changes to a company's operations; speaking with the client might be the only way for auditors to gain a sufficient understanding of the client's business and conduct a comprehensive audit.

Previous research in accounting has not directly examined the extent to which auditors make use of client inquiries, although there are a few studies that suggest such inquiries occur frequently. For instance, Bennett and Hatfield (2013) examine how the social mismatch between inexperienced audit staff and client management affects the audit process. According to their study, staff-level auditors report that "86 percent of the respondents met with management at least three to five days per week during a typical week of fieldwork, and 37 percent claimed to have met with client management every day" (p. 32). In addition, Hirst and Koonce (1996) and Trompeter and Wright (2010) suggest that auditors commonly approach client management for explanations when analytical procedures reveal potential discrepancies in a firm's financial statements. Inquiries of this nature are particularly important for the client because they provide an opportunity to influence and persuade the auditor that additional audit work is not required. If successful, clients can gain a significant advantage in subsequent auditor-client negotiations (Salterio 2012), as well as reduce or avoid subsequent audit adjustments.

Unfortunately for auditors, management may be able to deceive auditors during client inquiries in a way that simply would not be possible if auditors relied solely on the examination of financial records and other audit procedures. In general, people have a tendency to believe

what they are told. This phenomenon is known as “truth-bias” (McCornack and Parks 1986). It is reasonable to assume that the overwhelming majority of client communications do not involve deception, which may make it difficult for auditors to be sufficiently skeptical during client inquiries. Gaining a better understanding of deception and its detection might be one way to address the PCAOB’s concern over auditors’ lack of professional skepticism (PCAOB 2008; 2012b). The academic literature on deception is concentrated in the field of communications. The following section reviews this literature. Because this article examines the implications of deception research as they relate to client inquiries, the review is focused on deception in face-to-face contexts.

### **III. GENERAL FINDINGS ON DETECTING DECEPTION IN FACE-TO-FACE CONTEXTS**

#### **Evidence on Individuals’ Ability to Detect Deception**

Researchers generally agree that people do not perform well when attempting to distinguish between truth and lie. In a meta-analysis, Kraut (1980) finds that the mean accuracy rate of distinguishing between truth and lie is only about 57 percent, which is only slightly better than a random choice. However, there are a few exceptions, as research has shown that certain individuals do have significantly greater deception detection ability than the average person.

#### ***Training***

Researchers have found that training can improve deception detection. For instance, deTurck and Miller (1990) trained some individuals to look for certain behavioral cues that indicate deception. They report the highest accuracy rates for trained detectors judging low-skilled deceivers, and the lowest accuracy rates for untrained detectors judging high-skilled deceivers. They also find that trained detectors can more accurately predict the accuracy of their

own judgments (i.e., trained detectors had a smaller discrepancy between their certainty of judgment accuracy and actual accuracy, relative to untrained detectors). In a similar study, Fiedler and Walka (1993) asked participants to judge the veracity of a series of reports on minor delinquency. Participants either were or were not given information about specific nonverbal cues to deception. In addition, some participants received performance feedback. The results of the study demonstrate higher detection accuracy rates for individuals who received information regarding deception cues and feedback. Overall, the results of deTurck and Miller (1990) and Fiedler and Walka (1993) provide some evidence that training can improve deception detection.

### ***Professional Experience***

There is also some evidence to suggest that individuals with considerable professional experience detecting deception may exhibit improved deception detection rates. Ekman and O'Sullivan (1991) used an experiment to examine whether certain groups of individuals, based on their professional experience, were more likely to detect deception than the average person. Their work was motivated in part by the fact that most previous studies examining deception detection used only student participants. The authors' participant pool consisted primarily of "professional lie-catchers;" including members of the U.S. Secret Service, Central Intelligence Agency, Federal Bureau of Investigation, and California police officers and judges. In addition to professional lie-catchers, they also examined psychiatrists, college students, and adults working in various professions.

Participants of their experiment were shown ten one-minute clips from videotaped interviews that portrayed individuals answering questions about a film they were watching. Participants of the experiment were told that about half of the people in these films would be lying. The results show that members of the U.S. Secret Service perform significantly better than

other occupational groups, which contradicts earlier studies that show no difference in detection performance, relative to chance, for occupational groups with a special interest in deception.

In a similar study, Ekman *et al.* (1999) find that the ability to detect deception is not limited to specialized members of law enforcement. The authors studied two groups of law-enforcement officers and one group of clinical psychologists, all of whom had a special interest or skill in detecting deception. These groups were compared with groups of law-enforcement officers and psychologists who did not have a special interest in deception. All participants were shown videos of individuals sharing their opinions on controversial social issues. Participants were asked to assess whether the individuals shown in the video were telling the truth or lying. The results of the study show that professional groups with a special interest in deception have detection accuracy rates significantly higher than chance.

These results should be considered with caution, for while there are a few studies that suggest that training or professional experience can result in improved deception detection, the majority of studies do not show significantly higher detection ability for experts. For example, in meta-analyses performed by Aamodt and Custer (2006) and Bond and DePaulo (2006), expertise is reported to have a non-significant effect on detection accuracy. In addition, researchers generally agree that people perform very poorly when trying to distinguish between truth and lie. Even for individuals with training or professional experience, accuracy rates for detecting deception are typically below 75 percent (Levine *et al.* 1999). This begs the question, why are people so bad at detecting deception?

### **Cues to Deception**

One reason that may explain the generally poor performance in detection accuracy rates is that behavioral cues that indicate deception are not well understood, nor are they easily



detected. Ekman and O'Sullivan (1991) mention that perhaps the reason why many studies find poor accuracy detection rates is that there is seldom any evidence in these studies that the behavior of deceivers differs from that of truth-tellers. In the most extensive meta-analysis to date on deceptive cues, DePaulo *et al.* (2003) report relatively few differences in the *nonverbal* behavior of deceivers, relative to truth-tellers; and existing differences are very small. Thus, it is likely very difficult for people who focus on nonverbal deceptive cues to discern truth from lie. DePaulo *et al.* (2003) do suggest that deceivers are more likely to make a negative impression on receivers, and are also seen as more tense. However, the differences in *verbal* deceptive cues can be more pronounced. Research shows that deceivers tend to be less forthcoming than truth-tellers, and provide fewer details in their arguments (DePaulo *et al.* 2003).

Perhaps one of the most significant findings of DePaulo *et al.* (2003) is that the experimental context is an important factor in detecting deception. The authors find that deceptive cues are more evident when deceivers are motivated to succeed, and that identity-relevant motivations (e.g., maintaining a good reputation) are more effective than monetary motivations in inducing deceptive cues. Thus, in previous studies where participants were not offered a reward for a successful detection, or penalized for unsuccessful deception, there may not have been any apparent differences in deceptive cues between deceivers and truth-tellers. Furthermore, DePaulo *et al.* (2003) find that deceptive cues become more pronounced when deceivers are discussing transgressions rather than more trivial matters. Thus, it appears that individuals need to feel a sufficient level of stress or physiological arousal before deceptive cues become manifest.

## Truth-Bias

Another potential reason for low detection accuracy rates may be individuals' apparent predisposition to believe what they are being told. Thus, even if people can correctly identify and interpret deceptive cues, they may still have a tendency to accept lies as truth. This phenomenon has been identified as truth-bias (McCornack and Parks 1986). Before the now-classic study of McCornack and Parks (1986), it was thought that detection accuracy between individuals would increase as they became more familiar with each another. However, McCornack and Parks posited that as familiarity grows, individuals gain confidence in their ability to detect deception, which leads to an increase in truth-bias and a decrease in detection accuracy. To test their hypotheses, McCornack and Parks designed an experiment utilizing pairs of individuals. One member of each pair made a series of truthful and deceptive statements that was recorded. The second member of the pair judged the veracity of the first member's statements. The results indicate that increases in relational development lead to increases in truth-bias.

Using a series of experiments, Levine *et al.* (1999) report a significant truth-bias in various settings. Their results suggest that the single best predictor of detection accuracy is the veracity of judged statements. Thus, it appears that one of the effects of truth-bias is that accuracy rates tend to be significantly higher than 50 percent when participants are judging true statements, and significantly lower than 50 percent when judging deceptive statements. Their results have implications for research on deception, as studies that do not control for truth-lie base rates may result in distorted detection accuracy rates.

Burgoon *et al.* (1994) provide evidence that even experts are susceptible to truth-bias. The authors use an experiment to compare truth-bias using a group of adult novices<sup>1</sup> and a

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<sup>1</sup> The term novice refers to an individual's lack of experience in detecting deception, as opposed to their lack of experience with the setting and other contextual factors of a particular task.

second group of experts (military intelligence instructors and related military personnel).

Participants interviewed strangers and acquaintances during which interviewees responded with deceptive and truthful answers. Participants were then asked to determine when interviewees were lying or telling the truth. The results show that, similar to McCornack and Parks (1986), participants exhibit higher levels of truth-bias for acquaintances than for strangers. These results hold for both novices and experts. Somewhat surprisingly, Burgoon *et al.* (1994) report that the accuracy rates of novices were actually higher than those of experts.

Buller *et al.* (1991) find that the effects of truth-bias are particularly strong for face-to-face communicators. Using an experimental design, the authors compared the detection accuracy of individuals who participated in interviews with those who watched prerecorded interviews. Specifically, one group of participants was asked to conduct two interviews in which the interviewee either lied or told the truth. These interviews were videotaped, and were later viewed by a second group of participants. The results indicate that those individuals who take part in face-to-face communications exhibit increased truth-bias and decreased accuracy, relative to participants who watch recordings of the interviews. The results suggest that the strength of persuasion and/or cues to deception may be contingent on the medium of communication.

### **The Effect of Suspicion on Truth-Bias and Detection Accuracy**

The presence of suspicion, which can be likened to skepticism, is fundamental to the process of detecting deception. After all, it is necessary for individuals to be at least minimally suspicious in order to make a truth/lie judgment (McCornack and Parks 1986). Several studies have examined whether suspicion can offset individuals' propensity to trust those with whom they are communicating. However, for suspicion to be useful in detecting deception, suspicion must do more than simply reduce truth-bias; it must also improve detection accuracy. For

example, it is possible for individuals to be overly suspicious, and to assume that statements are false unless proven otherwise. Such individuals would not exhibit truth-bias, but might nonetheless have low detection accuracy rates.

Toris and DePaulo (1985) conduct an experiment in which half of their interviewers are alerted to the possibility that interviewees might be engaging in deception. Their results suggest that those interviewers who are primed to be suspicious are more likely to rate interviewees as being deceptive, relative to interviewers who are not primed; thus, truth-bias appears to be reduced by suspicion. However, the authors note that priming interviewers to be suspicious does not improve detection accuracy rates. Interestingly, interviewees (both deceivers and truth-tellers) reported feeling less persuasive when interviewed by interviewers who were primed to be suspicious.

In a similar study examining relational partners, Stiff *et al.* (1992) find that the increase in truth-bias exhibited between partners in well-developed relationships is attenuated by suspiciousness. Specifically, when participants receive negative information regarding the potential veracity of their partner's message from a third party, they are more likely to abandon truth-bias (i.e. make greater judgments of deceptiveness) than participants who do not receive such information. However, and in keeping with Toris and DePaulo (1985), skepticism does not appear to improve individuals' ability to detect deception.

McCornack and Levine (1990) posit that the lack of results regarding suspicion and detection accuracy is the result of researchers' methods of operationalizing suspicion (i.e., suspicion is modeled as a dichotomous variable). As noted earlier, individuals are generally trusting and typically exhibit a truth-bias, which reduces detection accuracy. When individuals are primed to be suspicious, they abandon their truth-bias, and may adopt a lie-bias, which also

reduces detection accuracy. For this reason, McCornack and Levine (1990) predict a non-linear effect of suspicion on detection accuracy; such that a moderate level of suspiciousness, one which avoids both truth-bias and lie-bias, may improve detection accuracy.

To study their hypothesized relationship, relational partners were recruited to take part in a controlled experiment. One partner was videotaped making a series of statements that were either truthful or deceptive, after which the second partner viewed the videotape and judged the veracity of these statements. No information regarding the possibility of deception was given to participants in the low-suspicion condition. Participants in the moderate-suspicion condition were told that their partners “may not be completely truthful.” In the high-suspicion condition, participants were told that their partners would definitely be lying on several of the recorded items. Results of the study demonstrate that individuals in the moderate-suspicion condition were found to have the highest rates of detection accuracy, which supports the non-linear relationship between suspicion and detection accuracy predicted by McCornack and Levine (1990). Furthermore, the authors provide evidence that both situationally-aroused suspicion (manipulated by experimental treatments) and a predisposition toward being suspicious (an inherent trait) significantly influence detection accuracy.

Table 1 presents a summary of the studies discussed in this section. The next section discusses academic studies that have examined deception detection from an accounting perspective.

[Insert Table 1 about here]

#### **IV. DETECTING DECEPTION IN CLIENT INQUIRIES**

There is a paucity of auditing research examining deception detection in face-to-face settings, which is somewhat surprising given the importance of client inquiries to the audit.

Extant literature in accounting and auditing provide practical guidance for how auditors should conduct client inquiries, and empirical evidence on the ability of auditors to detect deception.

This section summarizes these studies and suggests areas for future research.

### **Practical Guidance**

As referenced previously, Ariail *et al.* (2010) provide a thorough summary of the use of client inquiries during the audit process. Whereas the current review aims to provide recommendations for future research on detecting deception in client inquiries, Ariail *et al.* draw from research to make several practical suggestions for auditors' use of client inquiries. They issue four useful guidelines which are summarized here. First, no single behavior indicates deception. Thus, auditors need to be wary of focusing in on a single specific behavior and instead evaluate interviewees on a more holistic basis. Second, auditors should listen to what a person says, instead of focusing on how he or she looks when saying it. The reason for this recommendation is that it may be easier to detect verbal cues to deception relative to non-verbal cues (DePaulo *et al.* 2003). Third, because verbal cues may be an auditor's best chance to detect deception, auditors should allow interviewees ample opportunity to talk. This can be accomplished through the use of open-ended questions. Finally, auditors should make an effort to compare interviewees' statements to other sources of reliable information, as this may improve the likelihood that auditors detect deception.

The audit profession can greatly benefit from additional research on deception detection. This article next presents relevant studies in auditing and discusses how research from the communications literature may provide insight for future work related to detecting deception in client inquiries. While the communications literature certainly informs auditors regarding general strategies of deception, the dynamics of an audit may be very different to the contexts studied

previously, especially when client personnel are highly incentivized to convince auditors of their point of view. The potentially adversarial relationship between auditors and their clients could have a significant effect on deception and its detection and therefore merits additional research.

### **Detecting Deception in Non-Interactive Environments**

Early empirical studies on auditors' ability to detect deception utilize client inquiry settings but remove the interactive context innate to auditor-client communication. These studies examine whether auditors (and other "accounting interviewers") can detect deception at rates higher than chance, and how deception detection might be improved through training or experience.

#### ***Training***

Lee and Welker (2007) conduct two experiments and find that accounting students are not successful when attempting to uncover deception in a client inquiry. Based on the results of Buller *et al.* (1991) that suggest that deception detection improves for passive observers relative to interview participants, accounting students were asked to view videotapes of participants either lying or telling the truth about the value of real estate properties. The authors find some evidence that the act of taking part in a client inquiry may negate truth-bias. Perhaps the dynamics of a client inquiry may induce some level of suspicion or skepticism on the part of interviewers. However, the results of the experiment suggest that accounting interviewers are unable to detect deception (i.e., detection accuracy is not significantly greater than chance) in a client inquiry setting even when acting as passive observers. Thus, their results are consistent with those of previous studies in the field of communications (Stiff *et al.* 1992; Toris and DePaulo 1985).

In their second experiment, Lee and Welker (2007) analyze whether training in deception detection significantly increases detection accuracy. Half of the experimental participants were asked to watch a training video produced by the Association of Certified Fraud Examiners (ACFE) on common behavioral cues exhibited by deceivers. Detection rates of those who received training were compared to a control group which received no training. Results of the study indicate that detection accuracy rates are not significantly higher for participants who viewed the training video.

### ***Professional Experience***

An additional experiment conducted by Lee and Welker (2008) analyzes the deception detection accuracy of professional auditors. Similar to the authors' previous study (Lee and Welker 2007), research participants were asked to view a video of an interviewee who described the condition of real estate properties. The interviewee either did or did not describe the property accurately. After viewing the video, participants were asked to identify the behaviors exhibited by the interviewee during the interview. The purpose of this identification was to determine whether professional auditors use different cues in their deception judgments, relative to accounting students. Results of the analysis indicate that physical cues indicating anxiety tend to make accounting students more suspicious, although they have no effect on professional auditors. There are no other significant differences in the use of behavioral cues between the groups. Lee and Welker (2008) indicate that the ability of professional auditors to detect deception is equivalent to that of accounting students, and that neither auditors nor accounting students can detect deception at rates significantly higher than chance. The results of the study suggest that experience does little to alter auditors' interpretation of deceptive cues. More



importantly, professional experience does not appear to increase auditors' ability to detect deception.

### ***Suggestions for Future Research***

Additional research is necessary to determine whether certain types of training or experience affect deception detection in auditors. For instance, future research can examine which deceptive cues, or types of perceived cues (see Lee and Welker 2010), improve deception detection. A greater understanding of the verbal and nonverbal cues currently used by auditors, particularly those who have high rates of detection, could be beneficial in developing deception detection training. Ekman and O'Sullivan (1991) and Ekman *et al.* (1999) report some evidence that individuals with considerable professional experience have improved deception detection abilities. It may be the case that although the average auditor is unable to detect deception at a rate greater than 50 percent (Lee and Welker 2010), certain specialized auditors, such as forensic investigators, may have sufficient experience to detect deception during client inquiries. Future research is needed to determine the benefits of such experience.

The primary result from communication research regarding truth-bias is that as a relationship grows stronger, so does truth-bias (McCornack and Parks 1986; Stiff *et al.* 1992). A recent study by Cefaratti and Barkhi (2013) suggests that auditors, like other individuals, are affected by truth-bias. Cefaratti and Barkhi find that accounting students (who served as a proxy for auditors) reported feeling greater confidence in their ability to detect deception for repeat clients, relative to new clients. Although the authors do not examine the students' ability to detect deception, the correlation between familiarity and confidence supports previous findings on truth-bias (McCornack and Parks 1986; Stiff *et al.* 1992). This result has important implications for the auditor-client relationship. Does truth-bias increase with auditor tenure?

Perhaps of special interest to the auditing profession is the effect of client power on truth-bias. For example, do auditors exhibit a higher degree of truth-bias when their respective offices are more dependent on client fees?

Auditors are expected to exhibit professional skepticism. Thus, future research is also needed to determine the effects of professional training and experience on skepticism, and the relationship between skepticism and auditors' susceptibility to truth-bias. Lee and Welker (2007) provide some evidence that a client inquiry setting negates truth-bias, perhaps because it induces a sense of professional skepticism in interviewers. However, skepticism does not appear to improve detection accuracy rates, which is very much in keeping with the communications literature (Stiff *et al.* 1992; Toris and DePaulo 1985). Is there an optimal amount of professional skepticism that should be adopted by auditors prior to client inquiries? McCornack and Levine (1990) suggest that individuals with a moderate level of suspicion exhibit greater detection accuracy, relative to individuals with either a truth-bias or a lie-bias. In a similar vein, should auditors exhibit a moderate level of professional skepticism, neither assuming innocence nor guilt? SAS No. 1 (AICPA 1997) seems to suggest that this is the optimal approach, as "it does not assume any bias *ex ante*" (Nelson 2009).

Finally, the results of future research may shed light onto the process of priming auditors to be appropriately skeptical during, and following, client inquiries. While audit firms may be able to increase "state", or situationally-aroused, suspicion through priming, training, or contextual factors of the client inquiry, there is some evidence that certain individuals display an increased level of suspicion as a trait. Levine and McCornack refer to "generalized communication suspicion" as a "predisposition toward believing that the messages produced by others are deceptive" (Levine and McCornack 1991, 328). How does an innate suspicion

translate into auditors' abilities to exhibit professional skepticism? In addition, how might audit firms utilize individuals with this skepticism trait to make the audit process more effective?

### **Detecting Deception in Interactive Environments**

Other work by Lee and Welker (2010; 2011) examines deception detection in a setting with greater interaction. In these studies, interviewers and interviewees converse face-to-face rather than interviewers viewing prerecorded responses via video. In addition, these studies examine how exposure to communication styles and behavioral cues affect auditors' ability to detect deception.

### ***Auditor Exposure to Truth-Telling***

Lee and Welker (2011) examine whether interviewers' detection accuracy improves as they become familiar with the behavioral cues exhibited by interviewees when they are telling the truth. The study is motivated in part by recommendations from the ACFE that interviewers "calibrate" interviewees' behavior at the commencement of interviews. According to the ACFE, interviewers must remember that interviews can cause stress for interviewees – even those who are telling the truth (ACFE 2012). The process of calibration entails observing the behavior of interviewees when they answer questions truthfully at reduced levels of stress. This process can be accomplished by asking interviewees "noncritical questions on background information, place of employment, and the like" (ACFE 2012, 3.240). Observing interviewees in this context may enable interviewers to detect the changes in interviewee behavior when they are questioned about potential misdeeds or deception.

The participants used in this study were accounting students. The authors assess the effectiveness of calibration by allowing one group of interviewers to take part in five preliminary interviews prior to a "focal interview," in which interviewers were asked to assess deception.

During the preliminary interviews, interviewees were instructed to answer all questions truthfully, which provided interviewers with the opportunity to become familiar with the behavioral cues exhibited by their interviewee when telling the truth. Results suggest that calibration of an interviewee's truth-telling increases interviewer's ability to detect truth. However, calibration does not significantly affect interviewers' ability to detect lies in a client inquiry setting. In practice, auditors often interact with client personnel on a daily basis. Presumably, the vast majority of these interactions do not involve deception. The results of Lee and Welker (2011) suggest that familiarity with a client's truth-telling does not improve auditors' ability to accurately detect deception, which is of great concern to auditors.

#### ***Auditor Exposure to White Lies***

Lee and Welker (2010) examine whether exposure to an interviewee's white lies can increase interviewers' rate of deception detection accuracy. In their experiment, interviewers were allowed to grow familiar with interviewees' behavioral cues during a series of informal interviews taking place during the course of a ten-week period. During interviews, interviewees were randomly assigned to tell the truth or lie about a series of personal opinions and experiences. Following the interviewees' narratives, interviewers were asked to assess the veracity of interviewee statements, and subsequently received feedback on their performance, which enabled interviewers to gain familiarity with interviewees' deceptive cues. At the end of the ten-week period, interviewers, along with their assigned interviewees, took part in a final, interactive interview, which was more akin to a client inquiry.

Results of the experiment suggest that auditors who are exposed to interviewees' white lies (those related to personal opinions or experiences) can improve their ability to detect white lies over time. However, this exposure does not appear to increase auditors' ability to detect

deception in a client inquiry setting. Thus, the ability of auditors to detect deception may depend on communication context.

### ***The Use of Multiple Auditors in Client Inquiries***

The results of Lee and Welker (2010; 2011) suggest that previous exposure to behavioral cues indicating truth-telling and deception does not result in improved deception detection. Holderness (2014) presents an experiment that examines how an additional auditor might make these cues more prevalent; namely, whether the presence of a second auditor in a client inquiry affects senders' communication strategy and exhibited leakage. The results indicate that both sender communication strategy and leakage are contingent on whether senders are questioned by single auditors or dual-auditor teams. Moreover, Holderness (2014) suggests that dual-auditor teams are better able to incorporate senders' verbal and non-verbal behaviors into subsequent judgments. Specifically, compared to single auditors, dual-auditor teams are not as easily persuaded by increased sender discussion and are more cognizant of how sender nervousness may indicate deception.

### ***Suggestions for Future Research***

Future research could examine whether calibration is effective at improving deception in a high-stakes setting. Calibration is only successful when there is a noticeable change in behavior between a low-stress, baseline state, and a high-stress, deceptive state. Previous studies may not have produced the stress necessary to induce behavioral changes (Ekman 1985). Future research can utilize different incentives or other contextual variables (e.g., multiple receivers) to make deceptive cues more noticeable to auditors.

Future research could also examine how the varied participation of multiple auditors affects deception detection. For instance, how might detection accuracy be affected if one auditor

actively participated in discussion while the other served as an observer? Although this practice is not used in a typical audit, it is common practice in investigative interviews where deception and other employee deviance or misdeeds is suspected. Marett and George (2004) propose that it may be more difficult for a sender to successfully monitor and respond to multiple receivers with varying levels of participation, though to my knowledge, their conjecture has yet to be tested.

Buller *et al.* (1991) have shown that non-participant observers have higher detection accuracy rates than interview participants. However, the interactive nature of client inquiries is inadequately modeled by the viewing of prerecorded client responses. Furthermore, it may be impractical for auditors to record client inquiries. Because detecting deception appears to be context dependent (Lee and Welker 2010), future accounting research should continue to examine deception detection in interactive contexts, which most closely approximates a client inquiry setting.

Table 2 presents a summary of the studies discussed in this section. In this and the previous sections, relevant research are presented from the communications and accounting literature as it relates to detecting deception in face-to-face settings. The following section examines how the increasing use of computer-mediated communication in today's auditing environment may change deception and its detection.

[Insert Table 2 about here]

## **V. DETECTING DECEPTION IN COMPUTER-MEDIATED COMMUNICATION**

### **Changes in the Audit Environment**

The use of computer-mediated communication (e.g., emails and instant messaging) in businesses has drastically increased in recent years. Audit firms are no exception. The increasing use of computer-mediated communications is especially evident in the newest generation of

auditors. In their research examining on-the-job learning in the audit profession, Westermann *et al.* (2013) interview 30 audit partners from a Big-4 firm. The partners' comments shed light on how computer-mediated communication is changing the process of client inquiries. Said one partner:

I was shocked one day a number of years ago to find out that the staff was emailing the controller questions. I just never thought of it. Of course you know there was no email when I was doing that stuff and so if you needed information the only way you got it was to talk to them. They knew that too and it was pretty widely accepted that you had an open door you just kind of walked by and if they were there, you would ask them the question. Or in some cases you stored your questions up and you had a certain time every day that you went by and went through these things. I may be wrong but I don't think you learn as well through electronic communication with your client. You learn through conversation (Westermann *et al.* 2013, 33).

The comments of a second partner speak to how computer-mediated communication may limit auditors' ability to practice professional skepticism, which is critical to the client inquiry process:

The part I don't like [about IT] is where the staff or senior sits there with an iPod...and they e-mail their questions to the client about what they want or don't understand and the client e-mails back to them and they are about eight feet away from each other. This face-to-face probing discussion skepticism that needs to be in the auditor's mindset when he or she is conducting the audit, I think you lose a lot of that (Westermann *et al.* 2013, 33).

The use of electronic media to conduct client inquiries undoubtedly creates a substantially different communicative context than a traditional, face-to-face environment. Of interest is how the use of computer-mediated communication will affect auditors' ability to detect client deception. The directional effect of computer-mediated communication on deception detection is not necessarily intuitive. On the one hand, the use of computer-mediated communication may increase deception detection. After all, there is evidence to suggest that passive observers are better able to detect deception than participants of face-to-face communications (Buller *et al.* 1991), perhaps because the lack of interaction limits the ability of deceivers to influence receiver judgments. In a similar manner, deceptive clients may not have

the same opportunity to influence auditors without face-to-face interaction, which may improve auditors' detection abilities.

On the other hand, receivers of computer-mediated communication are not equivalent to passive observers because they are the intended recipients of the senders' messages and are expected to respond. The leaner context of computer-mediated communication may hinder auditors because it limits their ability to perceive several behavioral cues associated with deception which are only observable in richer contexts (e.g., fidgeting or pupil dilation, see DePaulo *et al.* 2003). In addition, auditors should keep in mind that the use of computer-mediated communications may provide deceptive clients "with greater control of communication behavior and forethought, as well as with more time to plan, rehearse, and edit their messages before submitting them" (Zhou and Zhang 2006, 143). In other words, because immediate response is not expected in computer-mediated communications, a deceptive client can take his or her time to carefully craft a deceptive message. While this conjecture would apply primarily to email, instant messaging and other synchronous forms of computer-mediated communication also provide a lag between sender-receiver communications.

Research on deception in computer-mediated communications is still in its infancy, and few studies are relevant to client inquiries; nevertheless, these studies provide important implications for the auditing profession. Accordingly, this article presents the findings of recent studies and suggests how they can inform future research related to conducting client inquiries via electronic media. Findings are summarized in Table 3.

[Insert Table 3 about here]



## How Communication Medium Affects Deception Detection

Daft and Lengel (1986, 560) define information richness as “the ability of information to change understanding within a time interval.” Richness depends on a number of factors, including the number of informational cues that a medium allows as well the immediacy of feedback that a medium can provide. Face-to-face communication is the richest medium and provides a host of cues that receivers can use to better understand a conveyed message (Daft and Lengel 1986). Text-based media such as email are much leaner because they do not provide the receiver with visual or audio cues and feedback may not be immediate (Lee *et al.* 2009).

Carlson and George (2004) analyze how senders and receivers of deceptive communication may use media richness to their advantage. To assess the media preferred by deceptive senders, the authors presented participants with a business scenario that required a deceptive act. Participants were then asked which of several media they would use to carry out the deception. Participants were more likely to choose richer media (face-to-face and telephone) than leaner media (memo, email, letter, and voice mail). Furthermore, participants who chose leaner media perceived a higher probability of being caught in their deception.

To identify receivers’ media preferences for deceptive communications, a second group of participants was asked to identify how confident they were that they could detect deception in various media. Interestingly, receivers report higher levels of confidence in richer media contexts. It should be noted that *confidence* in detection ability is not analogous to detection ability. In fact, McCornack and Parks (1986) provide evidence that confidence leads to decreased detection ability. The results of Carlson and George (2004) demonstrate that senders and receivers *perceive* that deception and its detection is affected by the communication

environment, but do not provide any information on the *actual* effect of communication environment.

### ***Truth-Bias***

As previously outlined, McCornack and Parks (1986) propose that as familiarity between individuals grows, they gain confidence in their ability to detect deception, which leads to an increase in truth-bias and a decrease in detection accuracy. Boyle *et al.* (2008) test this relationship in a computer-mediated setting. Experiment participants were paired and asked to play a game of “prisoner’s dilemma.” Prior to making the decision to “stay quiet” or “confess,” participants were allowed to communicate with one another via a rich (telephone or face-to-face) or lean (instant messaging) medium to convey their intentions.

Results of the analysis indicate that detection confidence is increased by familiarity, physical proximity, and a richer communicative environment. Consistent with prior literature (McCornack and Parks 1986), detection confidence leads to truth-bias and poor detection accuracy, even in a computer-mediated environment. In an auditing context, the study suggests that the use of computer-mediated environments may not mitigate truth-bias.

Burgoon *et al.* (2003) examine how computer-mediated communication affects individuals’ perceptions of trust as well as their vulnerability to manipulation and deceit. Using an experiment, the authors used pairs of participants who communicated in one of four ways: face-to-face, text only, audio only, and audio-visually. For each pair, the authors randomly assigned one of the partners to either tell the truth or engage in deception. Participants were asked to discuss various topics for approximately ten minutes, after which they recorded responses to a series of debriefing questions.

Receivers' estimates of their partners' truthfulness were slightly lower for deceivers than truth-tellers. However, for those pairs of participants that included a deceiver, results demonstrate that receivers exhibit a truth-bias in both face-to-face and computer-mediated communications. Of special interest is how deceivers fare when using text-based communication, as that condition serves as a close proxy for auditors conducting client inquiries via email. The results indicate that perceptions of trust are lowest for participants who communicated via text, relative to all other media. However, deceivers who use text to communicate have higher ratings of believability than truth-tellers who use the same medium. Thus, the authors suggest that text-based communication is "perhaps the most ripe for manipulation and misuse" (Burgoon *et al.* 2003, 10).

### ***Suspicion***

George *et al.* (2008) examine the effects of suspicion on deception detection in computer-mediated communication. In their experiment, participants were asked to take part in a mock job interview. Interviewees provided a résumé which included both true and false information about their qualifications. Interviewers were instructed to thoroughly peruse the résumé, after which they were allowed to ask questions to the interviewees about their qualifications. Participants communicated via one of three media: email, chat, and audio. In addition, half of the participants received a warning that "up to 40% of all applicants have been known to lie on their resumes and applications" (George *et al.* 2008, 8), which was meant to increase interviewer suspicion.

Consistent with previous research on deception, interviewers exhibited a truth-bias in all three media, as evidenced by the low rate of successful lie detection. The authors find, however, that truth-bias is mitigated by the reception of a warning, which may suggest that skepticism improves deception detection. While medium did not directly affect deception detection, the

authors report evidence of an indirect effect of medium on deception detection through increased probing, which is operationalized as “the number of extra questions asked by interviewers about items that later proved to be deceptive” (George *et al.* 2008, 9). Specifically, when communication took place in richer media, interviewers were more likely to probe, which led to greater deception detection. Warning interviewers of the possibility of deception did not lead to increased probing. The results of this study provide further evidence that auditors should avoid computer-mediated communications when conducting client inquiries. Perhaps the use of email may cause auditors to be more hesitant to ask probing questions, which will limit their ability to detect client deception.

### ***Suggestions for Future Research***

The few studies examining deception in computer-mediated communication indicate that individuals might have difficulty practicing professional skepticism in a computer-mediated environment, relative to a face-to-face environment. However, the communication techniques employed by deceivers are dependent on context, and the auditing context is different in many ways from the contexts used in previous research. For instance, auditing is a “high stakes” environment, where the failure to detect deception can be extremely costly to the audit firms and financial statements users. In addition, the conflicting incentives of auditors and client personnel, as well as the differing levels of power and information in the relationship may also affect deception and its detection. Accordingly, future research should examine those contextual variables that are unique to the audit environment.

First, future research should examine the determinants of auditors’ choice of communication medium when conducting client inquiries. For instance, how do client preferences affect auditors’ use of computer-mediated communication for client inquiries? Due

to changes in business communications, client-communication norms may limit the opportunity of face-to-face interaction between auditors and clients. In addition, how do the time constraints inherent in the audit process affect auditors' propensity to use computer-mediated communication for client inquiries? Is the use of computer-mediated communication determined by individual engagement partners and managers, or are there firm-wide policies in place that govern auditors' use of computer-mediated communication during an audit?

Second, research should examine auditors' ability to detect deception using various communications media. Are auditors able to exhibit professional skepticism via email? How does communication medium affect auditors' susceptibility to truth-bias? Future research could examine how to encourage auditor skepticism in order to overcome the lack of behavioral cues available in leaner communication environments. The results of George *et al.* (2008) suggest that research should also examine how to motivate auditors to ask additional questions to verify client responses received via computer mediated communication.

Finally, future research can examine whether there are circumstances in which computer-mediated communication improves deception detection. For instance, Bennett and Hatfield (2013) report that because of the social mismatch between staff-level auditors and experienced client management, auditors reduce the amount of evidence they collect in order to avoid client interactions. However, communicating via computer-mediated media appears to reduce the effect of social mismatch. Thus, the use of computer-mediated communication may actually increase the likelihood of auditors to detect deception in certain situations. The next section examines a method of deception detection that is unique to computer-mediated environments; namely the use of text-analysis to identify deception.

### **Automated Deception Detection in Text-Based Communications**

As discussed previously, leaner media are less conducive to the sending and receiving of information cues (Daft and Lengel, 1986). Individuals are typically unable to detect deception in rich environments (Kraut 1980), and lean environments may exacerbate the problem (Burgoon 2003; George *et al.* 2008). Perhaps the limited number of cues perceptible to human senses in computer-mediated contexts precludes auditors from detecting deception (Lee *et al.* 2009), which should cause great concern to audit firms witnessing an increase in computer-mediated auditor-client communications (Westermann *et al.* 2013). One potential solution is the automation of detection in text-based communication using characteristics of the text itself. In order to automate deception detection, text-based cues to deception must first be identified.

An experiment conducted by Zhou *et al.* (2004a) provides support that linguistics-based cues can be instrumental in detecting deception by identifying differences between deceivers and truth-tellers. In the experiment, dyads were instructed to rank a number of items in terms of how critical they were to surviving in a desert. In approximately half of the dyads, one member was asked to deceive by ranking the items in an order contrary to their own beliefs. Discussions occurred via text-based, asynchronous communication, which was later coded for analysis. Results indicate that deceivers communicate differently than truth tellers. For example, deceivers display a higher quantity of communication, as well as more expressive and less formal language.

Hancock *et al.* (2008) conduct a similar study examining deception in synchronous text-based communication. In their experiment, dyads were asked to discuss four topics, and each dyad contained a participant who was deceptive during the discussion of two of the four topics. The authors analyzed transcripts of the discussions to determine differences in communication

between deceivers and truth-tellers. Similar to Zhou *et al.* (2004a), they report that deceivers produce more words, relative to truth-tellers. They also report that deceivers use more sense-based words, and tend to prefer other-oriented pronouns to self-oriented pronouns.

Zhou *et al.* (2004b) extend research in this area by examining whether several methods of cue classification can accurately predict deception. Specifically, the authors used discriminant analysis, logistic regression, decision trees, and neural networks to predict deceptive communication. The results suggest that the deception in text-based communications can be predicted at rates significantly higher than chance, and that the results are improved after limiting the analysis to the most indicative deceptive cues. Neural networks appear to perform slightly better than other classification methods, and are the most reliable method of classification across the authors' test settings.

Lee *et al.* (2009) study the difference in asynchronous text-based communication between deceivers and truth-tellers in a context more similar to a client inquiry setting. Experimental materials (which were adapted from Lee and Welker 2007), indicated that a property manager wanted to falsify the value of real estate listed in his company's records. Surveys explaining the scenario were distributed to participants, and participants were asked what the manager should avoid including in an email to his supervisor to protect his lie from discovery. The results yielded several potential cues to deception. A second sample of participants received the same information and was asked about cues that the manager could include in his report to appear more truthful. The results yielded several potential cues that belied truth-telling. Dyads then took part in an experiment in which one partner (the auditor) tried to verify the value of real estate by talking with the other partner (the property manager). Half of the property managers told the truth while the other half attempted to deceive auditors. The authors analyzed text from emailed

discussions to examine the differences between truthful and deceptive communications. Results reveal that relative to truth-telling managers, deceptive managers avoid those cues identified by survey results as indicating deception, but use a greater number of truth-conveying cues. Lee *et al.* (2009) find some results that contradict previous research (Zhou *et al.* 2004a), which suggests that deception techniques in computer-mediated communication are dependent on context.

### ***Suggestions for Future Research***

Additional research is needed to determine whether automated text-based deception detection is a viable option for audit firms. Future studies could construct a database using email correspondence related to several actual frauds to determine the communication techniques employed by deceptive client personnel. The results might provide cues to deception that are unobservable in studies examining individuals' perceptions of what constitutes honest and deceptive communication (e.g., Lee *et al.* 2009). Future research could also determine whether deception can be detected after controlling for individual characteristics of the communicator and other contextual factors. Finally, researchers could examine whether automated text-based deception detection is effective in a multi-period setting. How quickly can deceptive managers learn to adjust their communication in order to fool automated deception detection? In addition, would a measure of automated deception detection cause auditors to ignore other indicators of deception?

## **VI. CONCLUSION**

The purpose of this article is to review relevant literature on deception and its detection as it relates to a client inquiry context. Client inquiries are an essential part of the audit process. Nevertheless, there are very few studies that have examined the process of interactive communication between auditors and clients. Research suggests that both face-to-face and



computer-mediated communication provide deceptive clients with the opportunity, and may even increase their ability, to deceive auditors. It is thus imperative that audit firms understand the strategies that may be employed by deceptive clients.

Auditors and accounting students appear to be unable to accurately detect deception in a client inquiry setting (Lee and Welker 2008). Furthermore, there is no evidence that training and experience improves auditors' ability to detect deception (Lee and Welker 2008; 2010; 2011). Future research should examine whether forensic and other specialized auditors have an increased ability to detect deception. Alternatively, future research should examine how auditors can induce deceptive clients to exhibit an increase in the number and strength of deceptive cues in order to increase detection.

McCornack and Parks (1986) demonstrate that an increase in familiarity leads to decreased deception detection accuracy. This finding has important implications for auditors who work with client management on a daily basis. Future research should study the effects of auditor tenure and audit-client interaction on truth-bias. Future research is also needed to determine how auditors' professional skepticism tempers the effects of truth-bias, and what can be done to encourage auditors to remain skeptical during client interactions.

In addition, accounting researchers and audit firms should seek to understand the implications conducting client inquiries via computer-mediated communication on auditors' ability to detect detection. The lack of behavioral cues inherent in computer-mediated communication may place auditors at a disadvantage when trying to detect deception. Future research in this area should focus on how to overcome the drawbacks of a leaner communication environment and whether audit firms should encourage or discourage the use of computer-mediated communication to conduct client inquiries, particularly for high-risk areas of the audit.

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**Table 1**  
**Selected Studies on the General Findings of Detecting Deception in Face-to-Face Contexts**

Author(s)	Year	Purpose	Methodology	• Major Findings
Aamodt and Custer	2006	To determine whether there individual differences in deception- detection abilities exist	Meta-analysis	<ul style="list-style-type: none"> <li>• Results indicate no difference in accuracy rates based on confidence, age, experience, education, and gender.</li> <li>• “Professional lie-catchers” are no more accurate in detecting deception than the average person.</li> </ul>
Bond and DePaulo	2006	To determine whether there individual differences in deception- detection abilities exist	Meta-analysis	<ul style="list-style-type: none"> <li>• People are more accurate in judging audible than visible lies.</li> <li>• Truth-bias is prevalent.</li> <li>• “Professional lie-catchers” are no more accurate in detecting deception than the average person.</li> </ul>
Buller, Strzyzewski, and Hunsaker	1991	To examine the effect of an interactive, face-to-face context on truth-bias	Experiment	<ul style="list-style-type: none"> <li>• Participants who participate in an interview exhibit an increased level truth-bias relative to an observer who does not take part in an interview.</li> </ul>
Burgoon, Buller, Ebesu, and Rockwell	1994	To determine the susceptibility of experts to truth-bias	Experiment	<ul style="list-style-type: none"> <li>• Both experts and novices are subject to truth-bias.</li> <li>• Truth-bias is higher when interviewees are acquaintances relative to strangers.</li> </ul>
DePaulo, Lindsay, Malone, Muhlenbruck, Charlton, and Cooper	2003	To examine the differences in behavior between liars and truth-tellers	Meta-analysis	<ul style="list-style-type: none"> <li>• Liars are less forthcoming, and their arguments/tales are less compelling.</li> <li>• Liars make a more negative impression and are perceived as more tense.</li> <li>• Many behavioral cues exhibited by liars are not different, or are only slightly different, than those exhibited by truth-tellers.</li> <li>• Deceptive cues are more pronounced when liars are motivated.</li> </ul>

**Table 1 – (Continued)**  
**Selected Studies on the General Findings of Detecting Deception in Face-to-Face Contexts**

deTurck and Miller	1990	To determine whether training improves deception detection	Experiment	<ul style="list-style-type: none"> <li>• Training significantly increases deception detection for unrehearsed deceivers and low self-monitors.</li> <li>• The discrepancy between detectors' actual ability to detect deception and their certainty in the accuracy of their judgments is smaller for trained detectors than for untrained detectors.</li> </ul>
Ekman and O'Sullivan	1991	To determine whether certain occupational groups had increased ability to detect deception	Experiment	<ul style="list-style-type: none"> <li>• Members of the U.S. Secret Service are shown to detect deception with an accuracy rate significantly higher than chance and other occupational groups.</li> </ul>
Ekman, O'Sullivan, and Frank	1999	To determine whether certain occupational groups had increased ability to detect deception	Experiment	<ul style="list-style-type: none"> <li>• Professional groups with a special interest in deception; namely, select law-enforcement officials and clinical psychologists, have significantly higher detection accuracy rates than comparable groups without a special interest in deception.</li> </ul>
Fiedler and Walka	1993	To determine whether training improves deception detection	Experiment	<ul style="list-style-type: none"> <li>• Deception detection accuracy rates are improved for individuals who receive information regarding cues to deception and performance feedback.</li> </ul>



**Table 1 – (Continued)**  
**Selected Studies on the General Findings of Detecting Deception in Face-to-Face Contexts**

Kraut	1980	To determine whether individuals can distinguish between truth and lie	Meta-analysis	<ul style="list-style-type: none"> <li>• The mean accuracy rate for distinguishing between truth and lie is about 57 percent, which is only slightly better than chance.</li> </ul>
Levine, Park, and McCornack	1999	To examine the effect of message veracity on detection accuracy	Experiment	<ul style="list-style-type: none"> <li>• Accuracy rates are significantly higher than chance for true statements and significantly lower than chance for false statements.</li> </ul>
McCornack and Levine	1990	To examine the effect of suspicion on detection accuracy	Experiment	<ul style="list-style-type: none"> <li>• Suspicion has a non-linear relationship on accuracy, such that individuals who are moderately-suspicious have higher detection accuracy rates than individuals with low suspicion and high suspicion.</li> <li>• There is evidence that state-suspicion and trait-suspicion are distinct constructs.</li> </ul>
McCornack and Parks	1986	To examine the effects of familiarity on truth-bias	Experiment	<ul style="list-style-type: none"> <li>• Increases in relational development lead to increases in truth-bias.</li> </ul>
Stiff, Kim, and Ramesh	1992	To examine the effect of suspicion on truth-bias and detection accuracy	Experiment	<ul style="list-style-type: none"> <li>• Suspicion reduces truth-bias, but has no effect on detection accuracy rates.</li> </ul>
Toris and DePaulo	1985	To examine the effect of suspicion on truth-bias and detection accuracy	Experiment	<ul style="list-style-type: none"> <li>• Suspicion reduces truth-bias, but has no effect on detection accuracy rates.</li> </ul>

**Table 2**  
**Selected Studies on Detecting Deception in Client Inquiries**

Author(s)	Year	Purpose	Methodology	• Major Findings
Ariail, Blair, and Smith	2010	To provide a synthesis of the literature related to detecting deception in client inquiries, and to provide recommendations for auditors' use of client inquiries	Review	<ul style="list-style-type: none"> <li>• Auditors should not focus on a single indicator of deception.</li> <li>• Auditors pay greater attention to verbal, rather than nonverbal, cues to deception.</li> <li>• Auditors should allow interviewees to speak as much as possible.</li> <li>• Auditors should compare the information gathered during interviews with information from other reliable sources.</li> </ul>
Cefaratti and Barkhi	2013	To examine the effects of communication medium and client familiarity on auditors' confidence in their ability to detect deception	Experiment	<ul style="list-style-type: none"> <li>• Accounting students' report greater confidence in the ability to detect deception for face-to-face communication, relative to computer-mediated communication; as wells as for repeat clients, relative to new clients.</li> </ul>
Holderness	2014	To examine the effect of multiple auditors on deception detection in a client-inquiry setting	Experiment	<ul style="list-style-type: none"> <li>• Accounting students issue higher write-down recommendations for deceptive clients relative to honest clients.</li> <li>• Deceptive clients are better-able to persuade single auditors, relative to dual-auditor teams, of questionable accounting treatments.</li> </ul>

**Table 2 – (Continued)**  
**Selected Studies on Detecting Deception in Client Inquiries**

Lee and Welker	2007	To examine whether accounting interviews can detect deception, and whether deception detection is improved by training	Experiment	<ul style="list-style-type: none"> <li>• Accounting interviewers do not detect deception at rates greater than chance.</li> <li>• An inquiry setting appears to negate truth-bias.</li> <li>• Training does not affect detection rates.</li> </ul>
Lee and Welker	2008	To examine how the use of behavioral cues to make judgments of deception differs between accounting students and auditors	Experiment	<ul style="list-style-type: none"> <li>• Auditors and accounting students use similar behavioral cues to judge perception, with one exception – physical behavior that indicated anxiety increased students' suspicion but did not affect auditors' judgments.</li> <li>• The deception detection rate of auditors is not significantly greater than fifty percent.</li> </ul>
Lee and Welker	2010	To determine whether exposure to an interviewee's white lies increases deception detection accuracy	Experiment	<ul style="list-style-type: none"> <li>• Exposure to interviewees' white lies and truth-telling increases white lie-detection accuracy rates, but has no effect on deception detection in an interview setting.</li> </ul>
Lee and Welker	2011	To determine whether calibration improves deception detection accuracy rates	Experiment	<ul style="list-style-type: none"> <li>• Calibration (becoming familiar with interviewees' truth-telling behavioral cues) improves interviewers' detection of truth-telling but has no effect on deception detection accuracy.</li> </ul>

**Table 3**  
**Selected Studies on Detecting Deception in Computer-Mediated Communication**

Author(s)	Year	Purpose	Methodology	• Major Findings
Boyle, Kacmar, and George	2008	To examine the impact of computer-mediated communication, distributed communication, and relational closeness on detection accuracy	Experiment	<ul style="list-style-type: none"> <li>• Individuals' confidence in their ability to detect deception increases with familiarity, proximity, and medium richness.</li> <li>• Truth-bias is a concern in computer-mediated environments, as it negatively affects detection accuracy.</li> </ul>
Burgoon, Stoner, Bonito, and Dunbar	2003	To examine how communication modalities affect trust and vulnerability to deceit	Experiment	<ul style="list-style-type: none"> <li>• Truth-bias is prevalent in computer-mediated communication.</li> <li>• Deceivers were perceived as most believable by receivers when using text-based communication.</li> </ul>
Carlson and George	2004	To analyze senders' and receivers' choice of media in committing and detecting deception	Survey	<ul style="list-style-type: none"> <li>• Senders prefer richer media for committing deception.</li> <li>• Receivers prefer richer media for detecting deception, particularly when communicating with individuals with whom they are unfamiliar.</li> </ul>
George, Marett, and Tilley	2008	To examine the effect of warnings on deception detection in computer-mediated communication	Experiment	<ul style="list-style-type: none"> <li>• People were easily deceived in both interactive and non-interactive media.</li> <li>• Warnings of potential deception increased deception detection.</li> <li>• Richer media increased probing, which led to increased deception detection.</li> </ul>

**Table 3 – (Continued)**  
**Selected Studies on Detecting Deception in Computer-Mediated Communication**

Hancock, Curry, Goorha, and Woodworth	2008	To identify differences in text-based synchronous communication between deceivers and truth-tellers	Experiment	<ul style="list-style-type: none"> <li>• Compared to truth-tellers, deceivers communicate more, use more sense-based words, and use other-oriented pronouns rather than self-oriented pronouns.</li> </ul>
Lee, Welker, and Odom	2009	To identify differences in text-based asynchronous communication between deceivers and truth-tellers	Experiment	<ul style="list-style-type: none"> <li>• Deceivers use truth-conveying cues than truth-tellers.</li> <li>• There is no difference in the number of deceptive cues between deceivers and truth-tellers.</li> <li>• Deceivers prefer self-references to group-references.</li> </ul>
Zhou, Burgoon, Nunamaker, and Twitchell	2004	To identify differences in text-based asynchronous communication between deceivers and truth-tellers	Experiment	<ul style="list-style-type: none"> <li>• Compared to truth-tellers, deceivers communicate more, are more expressive, appear less formal, make more typographical errors, display less diversity, use nonimmediate and uncertain language, use more group references and modifiers, and use less complex messages.</li> </ul>
Zhou, Twitchell, Qin, Burgoon, and Nunamaker	2004	To test whether methods of the classification of deceptive cues that accurately predict deception	Experiment	<ul style="list-style-type: none"> <li>• Deceptive cues classified by various methods (discriminant analysis, logistic regression, decision trees, and neural networks) in text-based communications can accurately predict deception at rates significantly higher than fifty percent.</li> </ul>