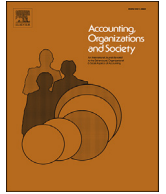




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Staff auditors' proclivity for computer-mediated communication with clients and its effect on skeptical behavior

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ABSTRACT

A questioning nature and professional skepticism are fundamental requirements for auditors to conduct high quality audits and facilitate appropriate financial reporting. This study considers whether computer-mediated communication (CMC) reduces auditors' questioning during interactions with the client, compared to face-to-face (FTF) communication. We also examine how nonverbal cues commonly associated with deception affect auditors' skeptical behavior. Based on partner interviews and a survey comparing partners/managers with staff, we find that partners are concerned with the increased use of CMC for a variety of reasons, and that staff are more comfortable using CMC in a wider array of audit settings than are managers and partners. Experimental results based on Social Presence Theory (SPT) demonstrate that FTF interactions include more content and follow-up questions (a key aspect of skepticism) than CMC. Additionally, auditors engage in fewer relationship-building statements when communicating electronically. Also consistent with SPT, auditors communicating electronically request more documentation, though they ask fewer questions in general. Finally, using a unique measure of auditor skepticism based on revealed behavior, we find that auditors were more skeptical if the controller displayed nonverbal cues associated with deception, than when these specific cues were not present or not observable (CMC). Our findings suggest that communication mediums with reduced channels (e.g., no audio or visual channels), such as CMC, are less appropriate for complex and unique problem solving tasks. When paired with the concern that younger staff auditors are more likely to engage in CMC, skeptical behavior could be stunted in the modern audit environment, impacting financial statement quality.

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1. Introduction

The quality of the audit process, and thus the financial statements, is dependent upon the nature of the interactions and relationship between auditors and management who create the financial statements (e.g., Arel, Brody, & Pany, 2005; Gibbins, Salterio, & Webb, 2001; Pentland, 1993; Shaub, 2004). Auditors are increasingly (and significantly) relying on computer-mediated communication (CMC) with clients and within the audit team (e.g., Baltés, Dickson, Sherman, Bauer, & LaGanke, 2002; Brazel, Agoglia, & Hatfield, 2004; Teeter, Alles, & Vasarhelyi, 2014). This study employs three sources of data to consider this complicated communication environment: interviews with audit partners; a

comparative survey of audit managers/partners and audit staff; and an experiment conducted with audit staff.

Semi-structured interviews with audit partners across multiple firms indicate a unanimous concern regarding the extent to which staff-level auditors are communicating with clients via CMC instead of in-person (see also Westermann, Bedard, & Early, 2015). Despite efficiency advantages to CMC, these partners express concern that by replacing face-to-face communications with CMC, younger audit staff are not developing important client relationships and are not learning how to "read" the client. Partners state that these relationships are important both for improving client service and their ability to obtain evidence.

We build on these interviews and prior research by conducting a survey to compare the communication attitudes between managers/partners and audit staff. While staff and partners agree on audit staff's use of CMC for data-gathering tasks such as requesting a list of journal entries or the minutes of a board meeting (i.e.,

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document requests), they have different comfort levels for using CMC (versus face-to-face (FTF) communication) regarding tasks such as asking questions about a perpetrated fraud, investigating fluctuations, or communicating a proposed adjustment to the client. We find that staff auditors are generally more comfortable using CMC in a wider variety of audit situations, which is consistent with research in contexts outside of accounting (e.g., Bergiel, Bergiel, & Balsmeier, 2008; Lipnack & Stamps, 2000).

Our interview and survey findings suggest that CMC is likely being used more often and in more situations than audit firms are comfortable with. It is important to consider these findings in light of the results of two other studies. First, Bennett and Hatfield (2013) find that young auditors are often hesitant to engage older, more knowledgeable client managers in a face-to-face manner due to a social mismatch between the two parties. However, staff auditors were more likely to communicate with the client manager via e-mail, likely due to the equalization phenomenon that occurs with CMC. Second, Saiewitz and Kida (2018) consider the other side of these interactions and find that, when the auditor uses CMC to request evidence, the client provides less evidence regarding a potential adjustment compared to a telephone or “in-person” request. While Bennett and Hatfield suggest that use of CMC increases the likelihood that young auditors will interact with older audit managers, Saiewitz and Kida suggest that the client will provide qualitatively different evidence when requests are made via CMC, thus affecting both client and auditor judgments. We add to this literature with our experiment that addresses the concern that the use of CMC may have specific limitations on the audit process.

Our experiment, rooted in Social Presence Theory (SPT), considers how the use of CMC may influence the conduct of the audit through the extent of auditors' questioning of the client, as well as hinder the staff auditors' ability to build rapport and establish working relationships with the client through commonplace exchanges (e.g. pleasantries such as “how are you today?”) (both key concerns of interviewed partners). Social Presence is simply defined as the awareness of those with whom one is communicating. Compared to text alone (e.g. e-mail), audio channels enhance social presence even when visual channels are not present (e.g., a telephone conversation), increasing meaning and understanding providing added elements such as tone of voice, pauses, and speed. The existence of a visual channel (e.g., talking face-to-face) further increases social presence by allowing for cues (e.g., facial expressions, body language, and talking distance) that can alter the meaning of the audio channel alone, often in subconscious ways (Short, Williams, & Christie, 1976). Additionally, visual cues improve the synchronicity of interaction, indicating the level of understanding (or lack of understanding), as well as signals regarding whose turn it is to talk in the conversation. Therefore, face-to-face (FTF) communication (with both visual and audio channels relaying the message) is considered to have high social presence, while communication methods that have neither visual nor audio elements (e.g., text-only communications, such as e-mail) have the least social presence (Christie, 1974).

Ultimately, SPT suggests that task performance improves as features of the task better fit the communication mode. Less social presence (e.g. CMC) is better fitted when the task requires relaying specific information or when the questions to be asked are known (Daft & Lengel, 1986; Heller, 2010; Noteberg, Benford, & Hunton, 2003; Short et al., 1976). Alternatively, FTF communication allows for rapid responses, generating more interaction, and the discovery of new questions to be asked (Short et al., 1976; Wilson & Williams, 1975). In an audit context, typical audit tasks include passive information requests, interactive problem solving, and combinations of both. The use of CMC is more conducive to information/documentation requests (e.g., asking client for invoices, journal entries,

or client contracts), but CMC can potentially impede the number of questions auditors ask directly of the client. Overusing CMC can impede audit quality, since asking follow-up questions is a fundamental skeptical behavior (e.g., AICPA, 2013), which is a key concern of interviewed partners.

A primary benefit to greater social presence is the ability to observe and hear cues that are absent with CMC (Heller, 2010), also a concern of interviewed partners. Certain nonverbal cues can betray deception on the part of the information source (Frank, 1988; Valley, Moag, & Bazerman, 1998). Several meta-analyses indicate that cues such as speech disturbance (“uh” or pauses), a higher-pitched tone of voice when making a statement, and decreased eye contact are associated with deception (e.g., DePaulo, 1992; Ekman, 1989; Zuckerman & Driver, 1985). We expect that the observance of such cues will consciously, or subconsciously, cause auditors to exhibit more skeptical behavior (Vrij & Semin, 1996) relative to when such cues do not occur in-person or not observable via CMC.

Our experiment has three conditions: e-mail communication, FTF communication (neutral), and FTF communication with nonverbal cues of deception (FTF-dc).¹ In the experiment, auditors are given an audit task: follow-up on three accounts receivable confirmations returned with exceptions noted by the audit client's customers. In order to resolve these exceptions, staff auditors must interact with the client controller (experimental confederate). We find that when communicating electronically, auditors ask fewer follow-up questions of the controller, have shorter overall interactions, and engage in less “back and forths” in the conversation. Further, auditors engage in fewer relationship-building statements when using e-mail.² It is interesting to note that, consistent with SPT, auditors communicating electronically request more documentation though they ask fewer questions in general.

The second of the three confirmations was designed to be a very complicated issue (i.e., potential inventory valuation issue) that was unlikely to be resolved, allowing auditors ample opportunity to ask a variety of questions.³ We clustered the deception-based cues on this confirmation in the FTF-dc condition and measured skepticism for all three conditions on this second confirmation only. Using transcribed discussions between participants and the controller, independent coders rate how skeptical the auditors were in their questioning of the controller and of the information being provided regarding this issue. This unique measure is based on revealed characteristics, such as the probative nature of the questions asked, as well as skeptical comments and/or workpaper documentation requests (i.e., curiosity or willingness to go beyond the client provided information to seek corroborative information). When receiving nonverbal cues associated with deception, auditors were more skeptical than both the “neutral” FTF condition (i.e., in which the nonverbal cues were not related to deception) and the CMC condition. The comparison to CMC addresses a key concern of interviewed partners, that auditors behave less skeptically using

¹ While all face-to-face communications involve non-verbal cues/signals, in the current study this manipulation involves the controller (confederate) deliberately inserting certain non-verbal cues that convey an uncomfortableness and lack of forthcomingness in response to the auditor's questions into his interaction with participants (referred to as “FTF-dc” condition).

² In our study, we consider “relationship-building statements” to be friendly or personal statements that are considered “pleasantries,” but not directly related to the audit issue. Examples include: “how are you doing today,” “hope you're having a good day,” “looks like you're really busy today” or “hey, it's good to see you again.”

³ While it was possible to identify the potential valuation issue, it was designed to be a “big picture” issue that would most likely be identified by higher-level auditors based on the content of the workpapers. This design choice, developed with the help of an international audit firm, was employed to avoid limiting the questioning and evidence collection of auditors.

CMC when they are unable to view such cues indicative of deception (or a lack of forthcomingness), relative to when these channels of communication are available in-person.

The theoretical discussion and findings of this study are important to the practice of auditing as well as to accounting research. A central premise of this study is that communication mediums with reduced channels (e.g., a lack of audio and visual cues), such as CMC, are less appropriate for complex and unique problem-solving tasks. It is important to note that, while our experiment treats this communication choice as exogenous, it is endogenous and the general preferences (demonstrated in our survey findings) and social pressures (demonstrated in Bennett & Hatfield, 2013) result in increased use of CMC. The current findings need to be considered in this broader context of the interactions between auditor and client. For example, while the *equalization phenomenon* (Dubrovsky, Kiesler, & Sethna, 1991) may break certain social barriers allowing young auditors to be more engaging with older, more experienced client management through the use of CMC, we find that this use of CMC does result in specific limitations to auditor questioning and skepticism. Thus, our results suggest that choice of communication mode should be explicitly considered throughout the audit. The key is to appropriately match task with communication medium (Daft & Lengel, 1986; Short et al., 1976). Our results can help audit firms train staff-level auditors regarding the explicit tradeoffs between communication modes, as well as help firms consider audit methodology adjustments to address these critical concerns. We also contribute to skepticism literature by providing a different measure of auditor skepticism: evaluation of auditor behavior during an interview. While our study was not designed to test auditors' ability to ferret out liars, it does demonstrate that as the auditor perceives the client becoming less comfortable providing information (through nonverbal cues), the auditor increases their skepticism.

The remainder of the paper includes a discussion of the generational differences regarding the use of CMC in the next section; hypotheses development in Section 3; and the experimental design in Section 4. Section 5 presents the results followed by a discussion of our findings and implications for accounting research in the final section.

2. Comfort with the use of CMC: staff versus partners

Computer-mediated communication (CMC) has numerous advantages. For example, CMC allows information to be relayed between parties asynchronously, avoiding the need for people to be in the same place at the same time and reducing scheduling conflicts and travel costs (Heller, 2010). In an audit setting, staff-level auditors consider their use of e-mails to client management as less intrusive to client management (Bennett & Hatfield, 2013). Further, CMC can reduce the individuals' perceived status differences during communication that can prevent high-status communicators from dominating discussions (Dubrovsky et al., 1991). Similarly, issues associated with age, race, gender, and even physical handicaps can be reduced with CMC (Bergiel et al., 2008; Nowak, 2003).

2.1. Partner interviews

Younger business professionals are more comfortable with CMC than older professionals (Bergiel et al., 2008) and are more likely to use CMC to avoid feeling intimidated when meeting with older, more experienced client management in-person (Bennett & Hatfield, 2013). Thus, CMC may help staff auditors gather more information by reducing the potential for an uncomfortable face-to-face interaction with the client. We first investigate the use of

CMC use by audit teams to communicate with the client by conducting semi-structured interviews with six experienced partners across multiple auditing firms. These partners all have more than 20 years of experience.⁴ Questions were open-ended (e.g., "What are your thoughts regarding the use of electronic communication by your audit team in communicating with the client?"). Interviewees were asked their opinions regarding auditors' use of CMC with audit clients, including their concerns, whether or not the current level was appropriate, and the benefits of CMC compared to FTF communications with the client.

While all the partners interviewed recognize benefits to using CMC, such as those discussed above, all of the partners also share the concern that younger staff are not personally communicating adequately with their clients and thus not asking enough follow-up questions. A common example, stated by interviewed partners in slightly different ways, involves an audit partner working at the audit client for the day and noting that the younger staff never left the audit room. At the end of the day, when the partner asks the staff why they had not met with the client at all that day, the audit staff responded that they had been interacting with the client throughout the day via e-mail and electronic messaging. These partners stress the importance of building personal relationships with the client, stating that a good relationship is important for client service, as well as improving the ability of the auditor to obtain necessary evidence. Partners are also concerned that staff need to learn to "read" the client and that "body language" is an important aspect of evaluating client responses. Partners indicated that the many skills related to dealing with different client situations (and developing into future managers) have to be learned over time and through multiple interactions. To expand on these partner interviews, we conduct a short survey to examine this potential difference of perceptions.

2.2. Survey evidence

Fifty-four staff auditors and 39 managers and partners from two Big Four firms and two regional firms were given a short survey. Staff-level audit professionals had, on average, 1.95 years of audit experience, while the manager/partner level professionals had 11.01 years of experience. Staff were approximately 24.80 years old and were 54 percent female; managers and partners (combined) averaged 34.54 years old and were 38.50 percent female. In general, both staff and managers/partners reported that approximately forty percent of their communications with the client during audit fieldwork was done FTF. However, audit staff reported using e-mail more than managers/partners (49.3% compared to 38.5%, respectively; p -value = 0.01, untabulated), and managers/partners were more likely to use telecommunications to discuss matters with the client (18.1%) versus staff auditors (8.8%; p -value < 0.01, untabulated). Interestingly, on a scale of 1 ("Disagree") to 7 ("Agree"), audit staff disagreed to a lesser extent than managers/partners that they are able to determine moods electronically (means of 3.43 and 2.95, respectively; p -value = 0.08, one-tailed) or if someone is trying to hide something (means of 3.00 and 2.54, respectively; p -value = 0.06, one-tailed; Table 1, Panel A).

We asked survey participants about different audit situations in which *audit staff* could communicate with the client via e-mail or FTF interaction (i.e., staff were asked what they *would* do while managers/partners were asked what staff *should* do). Our expectations, based on the communication literature, are that younger audit staff will be more likely to prefer e-mail interactions than

⁴ Interviews averaged about 30 minutes. Four were conducted via telephone. One of the authors took notes of partners' responses during these discussions.

Table 1
Survey responses.

Panel A: Auditors' Use of Electronic Communications^a									
Statement	Staff-level Auditors		Managers & Partners		Difference				
	mean (SD)	n	mean (SD)	n	mean	t-stat	df	p-value	
1	I can generally determine people's moods when communicating with them electronically.	3.43 (1.69)	54	2.95 (1.56)	39	0.48	1.41	92	0.16
2	I can tell when people are trying to hide something from me when communicating with them electronically.	3.00 (1.52)	54	2.54 (1.32)	39	0.46	1.56	92	0.12
3	After a job interview, it is appropriate to send thank-you message via email rather than sending a handwritten thank-you note.	4.13 (2.03)	54	4.72 (1.93)	39	(0.59)	1.42	92	0.16
4	It is appropriate to send condolences via e-mail after a work colleague has had a family member pass away.	3.98 (1.95)	52	3.90 (2.11)	39	0.08	0.19	90	0.85
5	I would rather meet with my superior face-to-face for annual performance evaluation than to only have an electronic review (i.e., narratives and assessment communicated via email or another electronic system).	6.60 (0.97)	53	6.77 (0.54)	39	(0.17)	1.05	91	0.30
6	E-mail should be used as the primary form of communication in business settings.	3.38 (1.56)	53	2.68 (1.51)	39	0.69	2.13	91	0.03
Panel B: Auditor Communications in Given Audit Scenarios^b									
Statement	Staff-level Auditors		Managers & Partners		Difference				
	mean (SD)	n	mean (SD)	n	mean	t-stat	df	p-value	
1	How would you ^c request the Controller to provide a listing of all journal entries made during the year?	7.24 (2.98)	54	7.77 (2.45)	39	(0.53)	0.94	93	0.35
2	During discussions with payroll staff, the audit team learns that an employee had been fired for stealing inventory from the company. The staff/senior has a couple of questions to ask the Plant Controller to verify this information. How would you ^c ask these questions?	1.96 (1.18)	54	1.44 (0.82)	39	0.53	2.53	93	0.01
3	During the week, the audit team identified several minor (immaterial) audit adjustments. The manager wanted the staff/senior to bring these to the client's attention, even though they were immaterial, for their review and consideration. How would you ^c communicate these items to the client?	3.78 (2.68)	54	3.05 (2.38)	39	0.73	1.37	93	0.17
4	The audit team noticed that while the accounts receivable balance at year-end has increased, the allowance for doubtful accounts has not. They would like to know the policy on how the allowance is calculated by management. If given this task, how would you ^c ask how the estimate was calculated?	4.28 (2.74)	54	3.26 (2.47)	39	1.02	1.88	93	0.06
5	During testwork regarding revenue, you noted that one large sale was not accounted for in the proper period. The audit team has an audit adjustment to propose to management. If given this task, how would you ^c communicate the details of the adjustment and proposed entry?	2.76 (2.27)	54	1.76 (1.19)	39	1.00	2.73	93	0.02
6	How would you ^c request the company's secretary to provide the minutes of the Board of Director's Meetings?	8.96 (2.25)	54	8.87 (2.54)	39	0.09	0.18	93	0.86
7	In discussing the performance of the company during the audited year, the CFO said that it had been a strong year for the company. However, the audit team noted that Inventory Turnover had decreased, indicating that inventory was moving more slowly than in prior years. If given this task, how would you ^c follow-up to ask about inventory levels during the year?	3.65 (2.23)	54	3.23 (2.02)	39	0.42	0.94	93	0.35
8	How would you ^c request supporting documentation for a selected sample of payments made during the year (e.g. sample of check numbers) in order to test the disbursement approval process?	8.80 (2.18)	54	8.90 (1.73)	39	(0.10)	0.25	93	0.80
9	The staff is in the process of clearing review for the engagement. For one review note, it asks the staff to check with the Accounts Payable Clerk to make sure there have not been any changes to the accounts payable process. How would you ^c typically communicate with him/her to obtain this information?	6.19 (2.83)	54	5.00 (2.94)	39	1.19	1.93	93	0.06
10	When working on an audit engagement for the first time, how would you ^c generally interact with members of client personnel during an average day in audit fieldwork?	5.33 (2.61)	54	3.80 (1.74)	39	1.54	3.41	93	< 0.01

^a For each provided statement, participants responded on a scale of 1-7 where 1 represents 'Disagree' and 7 represents 'Agree'.

^b For each provided statement, participants responded using a scale of 1-11 where 1 represents 'Definitely Meet In-Person' and 11 represents 'Definitely E-mail Request'.

^c Staff receiving the survey received the language above (i.e., "how would you...") while managers and partners were asked "how should a staff/senior..."

older managers and partners (Bergiel et al., 2008; Lipnack & Stamps, 2000). Participants responded on an eleven-point Likert-type scale (1 = “definitely meet in-person” and 11 = “definitely e-mail request”). Audit staff and partners had similar preferences for situations requiring the conveyance of documentation, such as a request for a listing of journal entries (7.24 vs 7.77 respectively; p -value = 0.35, two-tailed) or a request for minutes of a board meeting (8.96 vs 8.87 respectively; p -value = 0.86, two-tailed) (See Table 1, Panel B.). These results indicate that both staff-level and manager/partner-level audit professionals prefer staff to use a communication method with less social presence when requesting documentation from the client.

However, on more complicated issues that may require further discussion and explanation, staff and manager/partner responses were generally somewhat different (See Table 1, Panel B), indicating a difference in comfort level regarding the use of CMC between partners and staff. For example, staff-level auditors preferred e-mail more than managers/partners when a staff auditor needs to check with the accounts payable clerk for differences in the accounts payable process (means of 6.19 vs 5.00, respectively; p -value = 0.03, one-tailed). Staff auditors also preferred CMC (4.28) more than partners/managers (3.26; p -value = 0.03, one-tailed) when asking the client how a receivable balance was calculated. In a setting where client relationship building is key – interacting with a new client – staff also preferred CMC more than FTF, compared to partners' preferences (5.3 vs 3.8, respectively; p -value < 0.01). Even in highly sensitive issues, staff are more likely to use CMC than partners believe they should (e.g., proposing an adjustment: 2.76 vs 1.76, respectively; p -value < 0.01, one-tailed; for questions regarding employee fraud: 1.96 vs 1.44, respectively; p -value < 0.01, one-tailed). While the means in these situations, for both groups, is generally under the midpoint suggesting overall preference for FTF communication, we are not necessarily trying to extrapolate behavior in these specific situations, but rather demonstrate a general pattern where staff appear more comfortable with CMC. We do not find statistical significance between staff and partners' views in the other two proposed situations, though the pattern of responses is consistent. Overall, these findings suggest that staff auditors are more comfortable using CMC in a broader range of client interactions than are partners in our sample.⁵

In open-ended questions, partners and managers responded very similarly to the interviewed partners. They display concerns that staff were not meeting with the client enough, were not learning client-management skills and developing as a professional, were not asking “real-time” follow-up questions, and were not developing a relationship with the client. The example provided in the interviews was echoed several times, that partners observe staff and seniors sitting all day at their computer without engaging the client in-person, and that this behavior is increasing.

While these survey results are not definitive, the expected differences in attitude certainly emerge. It is important to consider other aspects of the audit environment that push staff toward CMC. In a situation designed for FTF interaction, Bennett and Hatfield (2013) demonstrate that young auditors (masters students with 2.5 months audit internships) will forgo FTF interaction with the client due to social pressures created by differences in age and experience and by interrupting the client's work (over 60 percent of audit staff avoided the interaction). By doing so, auditors obtain less

information, many reaching the wrong conclusion and/or documenting their conclusion vaguely with regard to the extent of evidence obtained. That study suggests that, beyond the general preferences that we demonstrate in our survey, staff auditors have strong situational factors that increase the likelihood that they will choose CMC in the field. Thus, in light of Bennett and Hatfield (2013) findings suggesting that staff auditors may utilize CMC more heavily in certain situations and our survey findings that audit partners are concerned about potential negative effects to staff auditors utilizing CMC (i.e., without face-to-face interaction, the staff's ability to “read” the client is reduced, as well as their ability to foster the auditor-client relationship), we consider the potential negative effects of utilizing CMC on the audit evidence gathering process.

3. Hypotheses development

Professional Skepticism is an attitude that includes “critical assessment of audit evidence” (AICPA, 2010, 7; PCAOB, 2010b), which includes a disposition of inquiry. Inquiry involves seeking information from knowledgeable persons and should include consideration of client reactions and asking follow-up questions (AICPA, 2013). Lee and Welker (2007) suggest that extensive questioning creates an environment that induces a skeptical mindset in auditors. Standards specifically discuss the importance of follow-up questions as a way to discover issues, for example the circumvention of controls or indicators of fraud (PCAOB, 2010a), and as a premise to modify audit procedures or perform additional procedures (AICPA, 2013; PCAOB, 2010b). Chen, Kelly, and Salterio (2012) find that an audit environment including such questioning can deter earnings management. Given the importance of audit inquiry, and particularly follow-up questions (a specific concern reported in our partner interviews), we consider how the communication medium lends itself to this aspect of auditing.

3.1. Electronic vs. face-to-face communication: Social Presence Theory

In most industries, electronic communication is growing at a rapid rate (Heller, 2010). In auditing, electronic communication has become routine among audit team members (e.g., Brazel et al., 2004) and has increased even more since the development of electronic workpapers (e.g., Agoglia, Hatfield, & Brazel, 2009). Further, the rise of “remote audits” and “distributed teams” has resulted in increased use of technology to communicate among team members (Teeter et al., 2014), leading to saving labor costs through off-shoring as well as audit efficiencies. A key advantage of electronic communications among audit team members is that it allows managers and partners to review multiple jobs from a single location, thus reducing the time and cost of travel, improving audit efficiency (Agoglia, Brazel, Hatfield, & Jackson, 2010). Beyond the review process, electronic communication between auditors and their clients is increasing as well (Noteberg et al., 2003). While research (Agoglia et al., 2010) and anecdotal information suggest that audit firms perceive FTF communication to be superior, our survey evidence suggests that the preferred use of CMC in a typical audit may be different for staff auditors relative to older members of the audit team reviewing their work.

Social Presence Theory (SPT) was originally developed by Short et al. (1976) to consider the effectiveness of communicating via telephone (lacking visual cues) relative to FTF. This theory continues to be expanded and is quite relevant to modern electronic communication methods. Areas as diverse as conflict resolution (Larson, 2003), business communications (Sethi & Adhikari, 2009), and on-line education (Wei & Chen, 2012) consider the extent to

⁵ While age is different in our sample, so is experience. It is possible that experience with the firm alters perceptions of when CMC is appropriate. Therefore, we do not demonstrate a generational or age effect, as has prior research, but rather a position difference, which is likely a function of age and experience.

which social presences influences the effectiveness and acceptance of CMC. Social presence is the level of awareness of the other person in a particular communication medium. FTF communication has the highest social presence, including three primary channels of communication: textual, audio, and visual (Short et al., 1976). Visual channels of communication can enhance or even change the meaning of the other channels (Bergiel et al., 2008), as well as improve synchronicity of communication allowing for quicker adjustments within the interaction (Storper & Venables, 2004). For example, eye contact, nods, and facial expressions can indicate that there is mutual understanding (or a lack of understanding), when thoughts are completed, and that the other person should respond (Argyle, 1969). Greater synchronicity results in more conversation, including more questions, and quicker convergence of understanding.

Removing channels from the interaction hinders this process. For example, Wilson and Williams (1975) demonstrate that when the visual channel is removed (e.g., telecommunication), interactions are changed. They analyze the Watergate transcripts (consisting of telephone and FTF communication) and find less feedback in telephone communication (i.e., less social presence) relative to FTF communication. While they find telephone conversations include audio feedback to replace nonverbal cues (e.g., “I quite agree”), FTF communication was longer, had more agreements and disagreements, and included more questions. Their general finding was that better synchronized discussion in FTF communication leads to more content, relative to telecommunication. CMC, such as e-mail, has the least social presence (having only textual communication), making synchronous interaction more difficult.⁶

SPT highlights the importance of matching the medium of communication to the information task. For example, greater social presence improves task outcomes where the goal is information convergence, which involves reaching agreements or solutions through knowledge sharing, which benefits from immediate feedback. However, when the goal is information conveyance, greater social presence does not improve outcomes (Murthy & Kerr, 2003). Similarly, Carey and Kacmar (1997) find that FTF communication improves the solutions for complex tasks but not for simple tasks. Overall, research suggests that when the exact questions are known or simple information conveyance is required, fewer channels (low social presence) allow focus on the simple information at hand, as well as the ability to reread textual communications, and improve communication in such settings (Short et al., 1976). However, if problems become complicated, if the appropriate questions are not known (i.e., uncertainty exists), or if conflicts may arise, then greater social presence improves communication (Daft & Lengel, 1986; Noteberg et al., 2003; Short et al., 1976). Greater synchronicity of communication afforded by mediums with higher social presence creates a dialogue, with more immediate feedback to questions and the ability to ask subsequent (previously unconsidered) questions based on responses (Short et al., 1976).

Audit tasks vary in nature and thus differ in their need for social

presence. As discussed in the survey above, if the auditor simply needs a listing of journal entries, CMC is likely a better way to request the information. This finding is consistent with Heller, 2010 claim that CMC is best for simple information seeking. The asynchronous nature of the requests allows the client to provide the required information when they have available time, which is more efficient for both parties and, thus, more likely to be appreciated by the client (e.g., avoiding interrupting the client (Bennett & Hatfield, 2013)). Additionally, interviewed/surveyed partners indicate another key benefit to CMC is the audit trail of communication. Conversely, other tasks, such as the explanation of a fluctuation, would be better served via a communication method with more social presence. In such a vague task, the exact questions are unknown, and the client's reaction to questions may be an important part of the information gathered by the auditor (AICPA, 2013). Many audit tasks require the auditor to both request documentation and ask client management for explanations or clarification. Staff auditors spend a considerable amount of time with the client during fieldwork (Bennett & Hatfield, 2013), and their preference for CMC (as suggested in our survey results) is especially important in light of their significant involvement in gathering audit evidence. Yet, auditors are different than information seekers in prior communications research in that they are trained to be skeptical and are subject to professional standards that describe the need for inquiry.

The above discussion describes the strength of FTF interaction as involving more synchronous discussion, resulting in greater questioning by auditors. This leads to the general expectation that across audit issues, auditors will be more questioning when communicating FTF. In an auditing task, increased questioning represents increased skeptical behavior (AICPA, 2013; PCAOB, 2010b). The discussion of SPT above also suggests that CMC lends itself to information conveyance, such that auditors, across audit issues, will be more likely to use this communication to request documentation than when discussing the issues in-person. This leads to the following hypotheses:

- H1.** Auditors will ask the client more follow-up questions when communicating FTF than when using CMC.
- H2.** Auditors will request more documentation from the client when using CMC than when communicating FTF.

Staff-level auditors often do not have an established relationship with the audit client like other members of the audit team (e.g., managers and partners). Interviewed audit partners are concerned that staff auditors are not sufficiently building these new relationships when using CMC to communicate with the audit client. These partners view a strong auditor-client relationship as critical to the audit process, as working with the client provides auditors' with opportunities to assess client's competencies and abilities, as well as gain a better understanding of what the client is communicating.

Prior communication research suggests that greater social presence results in an increased level of social interaction (Kreijns, Kirshner & Jochems, 2003). Benefits to communication modes high in social presence (e.g. FTF) includes the synchronicity of the two parties' communication, as well as the ability to more quickly form impressions about the other party (Walther, 1993). Societal norms have evolved to include an expected “order” to a conversation, in which one party initiates the conversation in a manner that optimizes the other person's willingness to engage (e.g. “Hi, how are you today?”; “I could use your assistance on this matter.”) (Clark, 1996). When communications are initiated in-person, the two parties are able to read additional non-verbal cues from the other person (such as tone, facial expressions, and body language) that assist in determining whether to engage in a conversation. For

⁶ Although we choose e-mail as the form of CMC in our experimental design, we acknowledge that other forms of CMC may have characteristics that align more closely with mediums with higher social presence. For example, texting or instant messaging may lend itself to more “back-and-forth” discussions and shorter response times, but still lacks visual cues of in-person discussions. While advances in technologies, along with surrogates for visual cues (e.g. emoji icons), may enhance social presence, we use e-mail both to test the underlying theory (SPT) by eliciting the strongest effect size in our experiment and to mirror current audit practices, which typically do not include texting or instant messaging the client on significant, audit-related issues.

example, one's tone of voice or body language may convey urgency or hesitation in engaging in a conversation, which could influence the other party's subsequent actions.

In CMC, with less social presence to convey such cues, these initial statements are more formal and less personable (Clark, 1996; Walther, 1993). In fact, prior research examining text-only communication (i.e. e-mail) finds that CMC between parties tends to be more task-oriented and less "socially-oriented" in earlier stages of the relationship (Walther, Anderson, & Park, 1994). While this changes over time as a relationship is built (i.e. the two parties include more socially-oriented statements as more dialogue is exchanged), CMC takes longer than communicating FTF to develop a rapport (Walther et al., 1994). We examine the differential level of socially-oriented statements as it is an important antecedent to building relationships with the client, a key concern of our interviewed and surveyed partners.

Thus, given that these relationships between staff-level auditors and client management are not yet well-established, we anticipate FTF communications with greater social presence to foster greater social interaction more quickly between the two parties. That is, staff auditors communicating FTF with the client will include more simple friendly or personal statements, such as "how are you?" and "it's good to see you" in communicating with the client. Conversely, staff auditors' dialogue with the client via CMC will be more task-oriented and use fewer relationship-building statements. While personal statements and dialogue are unrelated to the audit task, it is helpful in building rapport with the client (see footnote 2 for examples). This leads to the third hypothesis:

H3. Auditors will make more relationship-building statements when communicating with the client FTF than when using CMC.

3.2. Deception cues

While additional FTF communications utilizes audio and visual channels that promote synchronicity between the parties (having both qualitative and quantitative effects on the discussion), the use of audio and visual channels also provide nonverbal cues that could raise doubts as to the veracity of the communicator. Frequency of body movements, speech disturbances (pauses and/or "uhs"), and a higher pitched tone of voice are indicators of potential deception (e.g., DePaulo, 1992; Ekman, 1989; Vrij & Semin, 1996). These cues are subtle and difficult to explicitly act on, but they likely influence individuals, perhaps without them knowing why (Vrij & Semin, 1996). Thus, witnessing such cues provides an additional benefit to FTF communications. Conversely, electronic communication is both asynchronous and limited to text, thereby allowing the sender to carefully craft his/her message to avoid further scrutiny.

Auditors face many situations that potentially involve aspects of deception by their clients. While outright fraud is relatively rare (Loebbecke, Eining, & Willingham, 1989), clients may simply attempt to avoid conveying certain information without lying. A key aspect of audit inquiry, as it relates to professional skepticism, is the consideration of client reactions to questions (AICPA, 2013). While prior research suggests that individuals in general are not skilled at detecting deceivers, we expect that if clients' reactions create concerns over their forthcomingness, auditors' questioning of the client should intensify. Thus, we anticipate auditors' reactions to cues related to deception to change their attitude toward the client. While the number of questions can be indicative of professional skepticism, skepticism is defined as an attitude (e.g., a questioning mind and critical assessment) (AICPA, 2010; PCAOB, 2012). We therefore expect that these non-verbal cues of deception will cause auditors to display a more skeptical attitude (perhaps not consciously, Vrij & Semin, 1996), altering the tone of

Table 2
Summary of experiment participant demographics.

	E-mail	FTF	FTF-dc	Summary
n	21	20	19	60
Female	8	11	5	24
Male	13	9	14	36
Mean Experience (in months) ^a	20.35	19.23	22.11	20.53

^a Mean Experience represents the mean audit experience, including internships, (in months) for the participants.

their questioning and documentation requests, causing them to ask more probing questions, scrutinize responses, and demonstrating greater curiosity in general.

Unlike the prior hypotheses, this expectation is limited to situations where the audit issue is more complex, requiring greater interaction between auditor and client. Based on this discussion of theory and the auditor's role, we expect auditor's skepticism to be aroused by cues indicative of potential deception. That is, in FTF communications in which the client displays deception cues (in addition to other nonverbal cues inherent in all FTF communications), auditors' skepticism will increase. Further, since auditors are receiving these additional cues related to deception via visual and audio channels, their level of skepticism will be greater than those in the CMC condition, who never had the opportunity to experience such cues.

H4. When the client displays nonverbal cues related to deception, auditors will behave more skeptically relative to FTF interactions where no such cues are displayed and to CMC interactions where such cues are unobservable.

4. Experiment

4.1. Participants

To examine the proposed hypotheses, we conduct a 3×1 , between-subjects experiment. Participants in the study included staff-level audit professionals from three of the four international accounting firms and one regional firm.⁷ Participants were 40 percent female, with approximately 20.53 months of average full-time work experience. See Table 2 for experience level by condition.⁸

4.2. Experimental audit case

Directions and case materials were administered to the participants on a computer. As noted in the instructions to the case, participants assumed the role of a staff-level audit professional on a hypothetical audit engagement. After presentation of instructions and client background, participants in all three conditions were taken to meet an experimental confederate in-person, who was in

⁷ We obtained the majority of participants at two offices of a "Big Four" accounting firm, while others completed the experiment at a location other than their respective firms' office. The results reported do not differ based on data collection site.

⁸ Despite random assignment, the ratios of male/female appear different across conditions. However, only the two FTF conditions approach marginal significance with regard to the difference (Fisher's p -value = 0.11). All analyses are unchanged when gender is included as a control variable, and gender is never significant in the analyses (all p -values > 0.25).

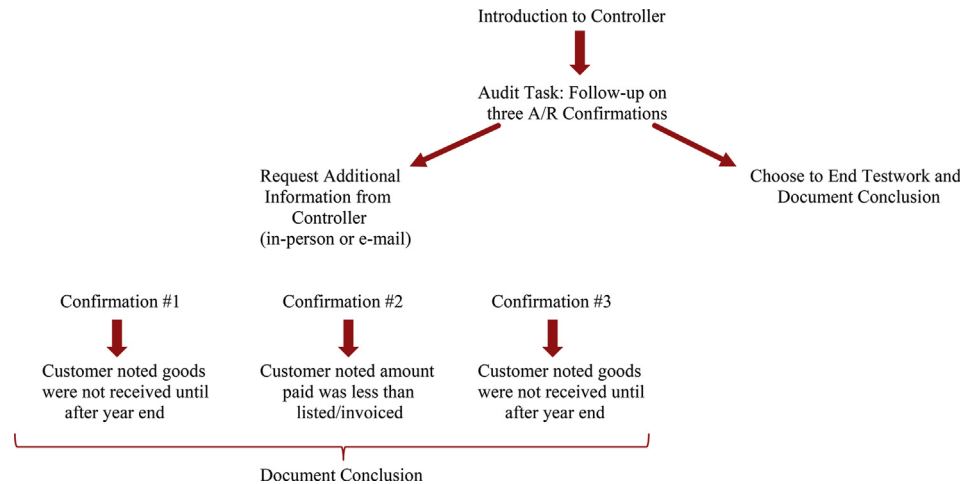


Fig. 1. Experimental design.

the role of the corporate controller.⁹ This personal, live introduction was kept consistent between all three conditions in order to give the participants a “baseline” meeting with the controller, to provide them with a face and initial “impression” for subsequent communications, and to provide participants the experience and knowledge that they will be communicating with a “real person.” After the introduction, participants were asked to complete testwork on accounts receivable confirmations.

To complete the testwork, participants reviewed three accounts receivable confirmations that had been returned with potential discrepancies between the customer’s records and the audit client’s records. As part of the assigned task, participants were to determine the nature of each discrepancy and conclude on accounts receivable testwork. Upon reviewing each of the three returned accounts receivable confirmation with noted discrepancies, participants could request more information from the controller.¹⁰ See Fig. 1 for an overview of the experimental design.

In the second contact with the controller (either FTF or via CMC), the participant received more information regarding the confirmations. In the FTF conditions, these discussions were audio taped, and the electronic audio files were collected by a third party and sent to an independent transcriber who created a written transcript.¹¹ In the CMC conditions, the e-mail communications between the two parties were retained for analysis. In all conditions, the controller’s answers/narrative and provided documentation to the auditors were the same, dependent on the auditor’s questions

and requests. The Appendix provides a copy of the script used by the experimental confederate in responding to anticipated questions. This script was used for questions asked in both FTF conditions, as well as in response via e-mail in the CMC condition. The nature of the participant’s question directed the conversation, as well as what information and which documents the controller provided. Therefore, the participant’s inquiries and follow-up questions were important to the information/evidence gathering process as, similar to a real audit scenario, their questions drove the type of evidence and knowledge received from client management.¹²

Although all three confirmations were provided simultaneously to the participant for initial review, the confirmations contained different issues and seeded problems.¹³ On the first and third confirmation, the client’s customer noted that one of the shipments of goods had not been received by year-end and was not considered a payable as of year-end on its books (and, conversely, indicated that the order related to the shipment should not have been considered a revenue and receivable by the audit client at year-end). The controller’s responses and respective documentation regarding the shipment noted on the first confirmation indicate that the order had been appropriately included in receivables, as the shipping terms for that shipment were FOB shipping point. However, shipping terms were FOB destination for the order noted on the third confirmation and should not have been included in the client’s accounts receivable.

On the second confirmation, the customer noted that they paid less than what was requested by the auditor to confirm (i.e., what

⁹ The experimental confederate was a former accounting professional with public accounting experience (participants were told of the confederate’s experience and that he was in the role of controller, not an actual controller). To avoid a potentially intimidating situation for staff auditors meeting with the confederate (e.g., Bennett & Hatfield, 2013), the confederate was not significantly older than participants and maintained a pleasant demeanor.

¹⁰ It is important to note that participants have to choose whether to follow-up with the controller (i.e., experimental confederate) in order to resolve issues and complete testwork (i.e., they were not forced into contacting the controller a second time). All participants chose to request more information, indicating that participants were well-matched to the task and that they did not perceive the controller to be “mismatched” in age/knowledge, which could potentially inhibit communication.

¹¹ The authors did not have access to the audio file itself, only to the transcribed narrative.

¹² While the researchers tried to anticipate all possible questions that could be asked during the task (and provided the confederate with appropriate responses), the design of the study and task, how the staff phrased their questions, the order and flow of the conversation, how documents were described, and the specificity of the questions was unknown. Thus, the confederate needed an accounting background and the ability/willingness to memorize a script and respond to questions accordingly.

¹³ Confirmations and seeded issues were reviewed by two audit partners, with consideration that staff-level auditors would be the targeted participants. Based on discussions with these partners, the tasks and seeded issues were amended to help ensure that the information was appropriate and that the confederate’s responses were logical.

the audit client's records showed as a receivable at year-end).¹⁴ Participants would have to ask a series of questions about the purpose of the discount to uncover a potential valuation concerns.¹⁵ It is to be noted that the complexity and ambiguity of the issues associated with the second returned confirmation were intentional, providing a rich context in order for the dependent variables of interest (described below) to be measured. This design choice allows for continued questions, as it is unlikely to produce an unequivocal solution. As previously noted, these issues were discussed with audit partners in practice, in order to ensure the logic and reasoning of potential questions and responses as well as the appropriate depth of the issue in order to illicit sufficient, measurable dialogue between the auditor and audit client. At the end of the audit task, participants were asked to conclude on each of the three confirmations. Participants then responded to questions regarding their perceptions of the audit client and provided demographic information.

4.2.1. Independent variables

To test the hypotheses, we manipulate whether (*after* the initial face-to-face meeting with the controller), the participant was provided the opportunity to meet with the controller face-to-face (FTF and FTF-dc) or to e-mail him to ask questions regarding the confirmations (CMC). Roughly one-third communicated with the controller via e-mail, one-third communicated with the controller face-to-face without any planned nonverbal cues related to deception (FTF), and one-third communicated with the controller exhibiting nonverbal cues indicative of deception (e.g., pauses, rubbing his face, avoiding eye contact, and "umm"s") (FTF-dc).¹⁶ Following deception and interviewing literature, we cluster these cues around a single aspect of the questioning (Confirmation 2) and provide a "baseline" behavior during the introduction and Confirmation 1 questioning (Schafer, 2010). Assignment to the three conditions was random. While the information and documentation provided was the same across conditions (dependent on the auditor's line of questioning), deception cues in the third condition occurred when asked about the second and/or third confirmations.¹⁷ Assuming that the auditor would want to talk about the

confirmations in the order presented (even though all were presented prior to meeting with the controller), having the initial meeting as well as discussion about the first confirmation provided "baseline" behavior of how the controller responds to questions and of his overall demeanor.¹⁸

4.2.2. Dependent variables

The dependent variables of interest represent the extent of information gathering and skepticism of the auditors when communicating with the controller. Based on the transcripts of the discussions and e-mail correspondence, we measure quantifiable characteristics of the discussions, including (a) the number of questions asked, (b) the number of exchanges ("back-and-forths") between the two parties, (c) the number of documents requested, and (d) the number of relationship-building statements.

Additionally, independent coders (blind to condition), who were former experienced auditors, rated the skepticism of the discussions regarding the second confirmation, using an eleven-point, Likert-type scale (0 = "Not at all skeptical" to 10 = "Highly skeptical").¹⁹ The two coders were instructed to rate the auditor's skepticism based on the conversation itself, including the line of questioning, what (and why) documentations were requested, and the purpose and nature of any follow-up questions asked. After the completion of the coding, the two coders articulated their logic behind how the skepticism scores were assessed. They stated that for participants to receive high scores on the professional skepticism measure, they had to ask valuable, related questions, not just questions for the sake of asking questions. For example, an auditor simply requesting an invoice (which was needed) was not enough to get a high score on skepticism. If they followed-up on responses the client gave and really tried to understand what the client was saying, it was indicative of more skeptical behavior. Essentially, when given a response by the client, the auditor participants would have to demonstrate curiosity and a willingness to dig further to corroborate information that was provided. Conversely, a very low score usually represented that the auditor took what the client had to say at face value and did not ask such questions, simply accepting that the explanation was true without verification or corroboration.

This unique measure, which attempts to measure participants' demonstrated skeptical attitude, is not a mechanical combination of number of questions or specific documents requested. Rather, the measure captures the raters' perceptions of the auditor's questioning based on, among other things, the probing nature of the questions, the auditor's need for corroboration, and their demonstrated scrutiny of client-provided information, as well as the tenor of the auditor's comments.

5. Results

5.1. Manipulation check

As previously mentioned, the information given to participants was dependent on the questions asked and documentation requested, not on the condition to which the participant was assigned. Therefore, between face-to-face and e-mail, we asked

¹⁴ If asked about the discrepancy, the controller explained that the customer received a discount, resulting in a difference in what was paid (\$18,000) relative to what was recorded as accounts receivable at year-end (\$19,900), which was reflected on the confirmation in question. Again, based on the auditor's questions, the controller would further explain that customers can receive discounts for paying "early." If the auditor requested documentation (i.e. the invoice) to verify such discount, the participant may notice (and question) why the amount was much greater than the 2% discount per the terms of payment on the invoice, (specifically stated as 2/10, net 30). Upon further questioning, the controller would state that the discount was approved (by the sales manager) and given to the customer in order to remain competitive and keep the customer from purchasing a competing product with another company. This lowering of the product's purchase price might be indicative of lower market value, questioning whether there were valuation issues (i.e., lower of cost or market issues).

¹⁵ Although the participant was not given enough information to make this conclusion on his/her own (e.g., the products' historical cost, margin), these facts indicate that there is at least a possibility of a valuation issue of inventory.

¹⁶ The confederate was instructed to use some specific nonverbal cues associated with deception (i.e., touching face, avoiding eye contact, using audible non-words such as "uhs", interject pauses) while providing the same information as in the other FTF condition in which the cues were absent. While participants in the FTF-dc condition viewed the controller as less credible, there were no differences regarding perceptions of his honesty. Even though the experimental confederate had to know when to insert these specific nonverbal cues, as well as memorize the script of what information he was to provide when asked, he was blind to hypotheses.

¹⁷ Great care was taken to ensure that these deception cues occurred in the same point of discussion and attached to the same responses, including extensive rehearsal by the experimental confederate. See Appendix for the script provided to the confederate to use in all conditions.

¹⁸ Upon review of transcribed conversations, participants did request further explanation and/or information pertaining to Confirmation 1 from the controller before discussing Confirmation 2 and Confirmation 3. Therefore, the "baseline" was able to be obtained.

¹⁹ Both independent coders were doctoral students (both CPAs) with more than four years work experience each as independent auditors in public accounting. Both coders were blind to condition and resolved differences between themselves, independent of the authors. Interrater agreement was high (Cronbach's Alpha = 0.826; p-value < 0.001).

Table 3
Auditors' Perceptions of controller (experimental confederate).

Perception Statement <u>Provided</u> ^b	Condition				Comparisons between Conditions							
	means (standard deviation)				A vs. B		A vs. C		A vs. D		B vs. C	
	E-mail	FTF	FTF-dc ^a	all FTF	df. = 40		df. = 39		df. = 59		df. = 38	
	n = 21	n = 20	n = 19	n = 39	t-stat	p-value ^c	t-stat	p-value ^c	t-stat	p-value ^c	t-stat	p-value ^c
"Mr. Adams was approachable "	6.00 (2.10)	7.15 (2.06)	6.21 (1.58)	6.69 (1.88)	1.77	0.04	0.36	0.36	1.26	0.11	1.6	0.06
"Mr. Adams was honest in his responses to my question(s) "	5.62 (1.94)	5.60 (2.11)	4.89 (2.00)	5.26 (2.06)	0.03	0.49	1.16	0.13	0.68	0.25	1.07	0.15
"Mr. Adams was willing to help "	6.00 (2.41)	6.15 (1.79)	5.68 (1.88)	5.92 (1.82)	0.23	0.41	0.46	0.32	0.13	0.45	0.79	0.22
"Mr. Adams was credible "	5.71 (1.87)	5.40 (1.81)	4.53 (2.04)	4.97 (1.95)	0.55	0.29	1.91	0.03	1.43	0.08	1.41	0.08
"Mr. Adams was forthcoming with information "	5.62 (1.96)	5.55 (1.90)	4.21 (1.99)	4.90 (2.04)	0.11	0.45	2.26	0.02	1.34	0.09	2.16	0.02
" I liked Mr. Adams "	5.52 (1.57)	6.10 (1.71)	4.84 (1.64)	5.49 (1.78)	1.21	0.13	1.34	0.09	0.08	0.47	2.35	0.01
"Mr. Adams seemed comfortable with my questions "	5.43 (1.89)	6.10 (2.44)	3.78 (2.04)	4.97 (2.52)	0.98	0.17	2.63	< 0.01	0.79	0.22	3.23	< 0.01

^a In the face-to-face, deceptive cues condition, the experimental confederate added in additional non-verbal cues that indicated he was not comfortable with the auditor's questions (e.g., "umm's", touching face, avoiding eye-contact). Alternatively, in the "neutral" condition, the information was the same and no purposeful non-verbal cues were added.

^b Participants rated perceptions based on a Likert-type scale, from 1 = "Strongly Disagree" to 9 = "Strongly Agree".

^c p-values are shown as one-tailed.

how the participant communicated with the controller (i.e., the experimental confederate). Only one person failed this manipulation check.²⁰ To consider differences brought on by deception cues, we compared FTF-dc with the other two conditions. As noted in Table 3, when the controller displayed deception cues, participants perceived him overall as behaving in a manner that may indicate he was less credible (mean = 4.53) than those that met with him face-to-face without these cues (mean = 5.40; p-value = 0.08, one-tailed) and those communicating via e-mail (mean = 5.71; p-value = 0.03, one-tailed).²¹ Additionally, participants in the FTF-dc condition found him to be less comfortable with questions (mean = 3.78) than in the FTF and CMC conditions (means = 6.10 and 5.43, respectively; both p-values < 0.01, one-tailed). However, in response to whether he was honest in his responses to questions, there were no differences between condition (means = 5.62, 5.60, and 4.89 for CMC, FTF, and FTF-dc, respectively; all comparison p-values > 0.13; Table 3), indicating that when the confederate demonstrated the deception cues, participants perceived him to be uncomfortable and, perhaps, less credible, but not necessarily lying (recall, the controller provided the same information in all conditions).

5.2. Test of hypotheses

Hypothesis 1 proposes that auditors will ask more follow-up questions of the audit client when communicating face-to-face (where social presence is higher), compared to when communicating via e-mail (low social presence). As outlined in Table 4, compared to the face-to-face conditions (combined), participants asked more follow-up questions (mean = 10.00 questions) than when using e-mail communications (mean = 2.42 questions; p-value < 0.01, one-tailed).²² Recall that SPT predicts that greater social presence leads to greater synchronicity of discussion and more discussion in general. Consistent with this, overall there was less discussion between the auditor and client using CMC (439 words), compared to FTF (650 words; p-value = 0.02; untabulated) and FTF-dc (777 words; p-value < 0.01; untabulated). Further, there is a greater amount of interaction (i.e., back-and-forth) in the FTF discussions relative to CMC (means = 18.90 “back-and-forths” versus 3.52, respectively; p-value < 0.01, one-tailed; Table 4). Additionally, for these variables, each FTF condition is significantly different than the CMC condition (see Table 4).

Also consistent with SPT and Hypothesis 2, we find a marginally significant difference between the number of documents requested in the CMC condition compared to the FTF combined conditions (6.91 versus 5.59 respectively; p-value = 0.09; Table 4). However, when we compare CMC to FTF alone, we find a more significant difference (6.91 versus 5.15 respectively; p-value = 0.04, one-tailed; Table 4). This pattern appears due to the uptick in documentation requests in the FTF-dc condition. Finally, as proposed by H3, we find that auditors made more relationship-building statements FTF, compared to CMC (means = 1.64 statements versus 0.71 statements, respectively; p-value < 0.01, one-tailed). Again, for these variables, each FTF condition is significantly different than the CMC condition (see Table 4).

It is interesting to note that participants communicating FTF did

²⁰ The provided analysis includes this person's responses; however, removal of this participant does not significantly influence the results.

²¹ Participants answered the statement “Mr. Adams was credible” using a nine-point Likert-type scale, where 1 = “strongly disagree” to 9 = “strongly agree.”

²² We also run analyses for number of questions for each issue separately. MANOVA with these three dependent variables is significant (Hotelling's Trace p-value < 0.001). Further, we find the same pattern of results across all three scenarios (i.e., FTF > CMC).

Table 4 Auditor and client discussions.

	Condition		Comparisons between Conditions							
	means (standard deviation)		A vs. B		A vs. C		A vs. D		B vs. C	
	E-mail	FTF	n	t-stat	n	t-stat	n	t-stat	n	t-stat
Number of Questions Asked	2.42 (1.89)	9.10 (5.37)	21	4.84	10.95 (7.07)	19	4.58	10.00 (6.24)	38	0.92
	3.52 (1.94)	17.75 (8.89)	20	5.91	20.10 (10.78)	19	5.58	18.90 (9.84)	38	0.74
Number of Back-and-Forth Interactions	5.10 (2.47)	3.95 (2.26)	21	1.55	4.35 (2.93)	19	0.66	4.23 (2.59)	38	0.69
	6.91 (3.78)	5.15 (2.48)	20	1.76	6.05 (3.98)	19	0.69	5.59 (3.28)	38	0.84
Number of Documents Requested	0.71 (0.72)	1.50 (1.57)	21	2.01	1.79 (2.07)	19	2.10	1.64 (1.81)	38	0.49
	0.71 (0.72)	1.50 (1.57)	20	2.01	1.79 (2.07)	19	2.10	1.64 (1.81)	38	0.49
Number of Relationship-building Statements	0.71 (0.72)	1.50 (1.57)	21	2.01	1.79 (2.07)	19	2.10	1.64 (1.81)	38	0.49
	0.71 (0.72)	1.50 (1.57)	20	2.01	1.79 (2.07)	19	2.10	1.64 (1.81)	38	0.49

^a In the face-to-face, non-verbal cues condition, the experimental confederate added in non-verbal cues that were to indicate he was not comfortable with the auditor's questions (e.g., “ummm's”, touching face, avoiding eye-contact). Alternatively, in the “neutral” condition, the information was the same and no purposeful non-verbal cues were added.

^b p-values are shown as one-tailed.

not ask significantly more follow-up questions, in total, when the client was providing nonverbal cues associated with deception (means = 10.95 questions for FTF and 9.10 questions for FTF-dc, respectively; p-value = 0.18, one-tailed; Table 4). While the extent of client questions was a fundamental concern of partners involved in the development of this study as well as those who were interviewed, it does not proxy for all aspects of the auditors' professional skepticism. Therefore, we also measure participants' skepticism regarding the more problematic issue. This observed skepticism, our primary dependent variable to test H4, is a measure of how skeptical the auditors' line of discussion and questioning was with the controller on that issue. Using this assessment of skepticism, we compared the auditors' skeptical actions between conditions.

We first compare FTF-dc with FTF to demonstrate the specific effect of adding these deception cues to face-to-face interactions. We find that the auditor was more skeptical in the FTF-dc condition (mean = 6.94), on a scale of 0 = low skepticism to 10 = high skepticism, than the FTF condition (mean = 5.55; p-value = 0.07, one-tailed; Table 5). Next, we compare FTF-dc to CMC to demonstrate how the inability to observe these cues, if present, alters the skeptical behavior of audit staff. We find that auditors were even less skeptical in the CMC condition (mean = 4.86) than in the FTF-dc condition (p-value = 0.01, one-tailed; Table 5). These results support H4 and suggest that when nonverbal cues indicate a particular issue is uncomfortable for the client, auditors respond with more skeptical behavior and questioning than when cues are absent or not available (i.e. via e-mail).

6. Discussion and limitations

In this study we examine how computer-mediated communication (CMC) changes the content of auditor-client interactions relative to face-to-face (FTF) communication. These practice concerns were made clear in semi-structured interviews with partners, who demonstrate unease regarding the extent that younger staff are using CMC relative to FTF communication. Results from a brief survey conducted with staff auditors, managers, and partners indicate that there are differences regarding perceptions of when to use CMC. While these differences were expected (Bergiel et al., 2008), the results indicate that staff auditors are likely using CMC in their interactions with the client more often than partners would prefer staff to use.

Consistent with Social Presence Theory (SPT), results of our experiment suggest that, when communicating electronically, auditors ask fewer follow-up questions of the controller, have shorter overall interactions, and engage in less "back and forth" dialogue during the conversation. Further, auditors engage in fewer relationship-building statements when communicating electronically. Consistent with theory, we also find that auditors communicating electronically request more documentation though they ask fewer questions in general. This application of SPT is an important contribution to accounting literature as technology and alternate forms of communication are increasing in the modern audit environment. For example, firms should be aware of, and perhaps include in training, the large difference occurring in the number of questions and the content of interactions between CMC and FTF.

On a more ambiguous audit issue, we also find that nonverbal cues related to deception, such as pauses, "umms," and higher pitched responses, cause auditors to act more skeptically. It is important to understand that people are not very good at determining deception, but improvement occurs through repeated interactions where deception occurs and is then discovered (Schweitzer, 2005; Vrij & Semin, 1996). While we clustered deception cues around the second and third issues after developing a baseline behavior of the client in the first issue, participants had

Table 5 Skepticism of auditor.

Condition	means (standard deviation)		Comparisons between Conditions				
	E-mail n=21	FTF n=20	FTF-dc ^b n=19	A vs. B d.f. = 40	A vs. C d.f. = 39	A vs. D d.f. = 59	B vs. C d.f. = 38
	A	B	C	t-stat	t-stat	t-stat	t-stat
Skepticism of Auditor ^a	4.86 (2.74)	5.55 (2.87)	6.94 (3.01)	0.79	2.29	1.79	1.49
			D 6.23 (2.99)	p-value ^c 0.22	p-value ^c 0.01	p-value ^c 0.04	p-value ^c 0.07

^a Skepticism of Auditor was measured using the written transcript to base how skeptical each participant was in his/her line of discussion and questioning the client (i.e., the experimental confederate). Two graduate students, independent of each other, and blind to condition, rated the skepticism on a 11-point Likert-type scale, where 0 = 'Not at all skeptical' to 10 = 'Highly Skeptical'. Coders resolved any discrepancies between their scores/measures, independent of authors and blind to conditions.

^b In the face-to-face, deceptive cues condition, the experimental confederate added in additional non-verbal cues that indicated he was not comfortable with the auditor's questions (e.g., "ummm s", touching face, avoiding eye-contact). Alternatively, in the "neutral" condition, the information was the same and no purposeful non-verbal cues were added.

^c p-values are shown as one-tailed.

very little interaction to determine potential deception, such that greater interaction would likely increase skeptical behavior. These issues demonstrate the validity of partners' concerns regarding young staff auditors not spending enough time in personal interactions with the client.

However, CMC has consequential advantages as well. Recall a key aspect of SPT is the importance of matching the task with the most appropriate communication mode. One prescriptive contribution of these findings is that firms may want to explicitly consider communication mode for their staff depending on the situation. For example, in areas where the questions to ask are known or simple conveyance of information is the primary goal, FTF communication has little benefit over CMC. Even in situations where CMC is the most appropriate communication medium, prior FTF interactions improve subsequent CMC and make it more effective for a broader range of tasks (Lin, Standing, & Liu, 2008; Powell, Piccoli, & Ives, 2004). Our survey results, in combination with findings of Bennett and Hatfield (2013), indicate that staff may choose CMC more often than partners would prefer. Thus, explicit considerations and guidance may need to be given to staff regarding the choice of communication method. Given that we focus on the quality and quantity of interactions between the staff auditor and client, a key concern of audit firms, future research should consider other audit areas where decision quality can be more directly examined.

It is important to note that just as telecommunications evolved to improve social presence (Short et al., 1976), CMC is likely evolving as well. For example, Larson (2003) suggest that coming generations are being raised primarily with CMC, through which they have developed ways to communicate emotion and are perhaps better able to discern implicit aspects of communication (e.g., deception). Additionally, they have developed cues outside of nonverbal cues (e.g., typographic) that allow for richer communication than purely the conveyance of text (Larson, 2003). As these generations gain representation in audit firms, the preferences and occurrence of CMC will likely continue to evolve. Research will need to consider how to operate effectively in work environments where CMC is increasingly the norm.

FTF interactions are also important in this context as these types of interactions improve one's ability to identify future deception (Vrij & Semin, 1996). Further, meeting FTF results in less deception, simply because people find it harder to deceive in-person (Lee & Welker, 2007; Valley et al., 1998). It is important to note that deception cues can be textual as well, and in fact, recent audit research has demonstrated that auditors can be trained to recognize deceptive cues occurring audibly or only in text (Hobson, Mayew, Peecher, & Venkatachalam, 2017). Firms may also consider prior research that suggests that, even when CMC is the most appropriate communication medium, prior in-person discussions and interactions improve subsequent CMC and make it more effective for a broader range of tasks (Lin et al., 2008; Powell et al., 2004).

It is important to interpret this study in relation to Bennett and Hatfield (2013). In Bennett and Hatfield (2013), the client controller's age, knowledge, and tenure were manipulated, creating experimental conditions in which there was a social mismatch between the participants (young staff auditors) and the older, more experienced client. The study finds that staff auditors were more reluctant to make in-person (FTF) requests due to the social mismatch. Yet, when given the option to make the request via e-mail (CMC), staff auditors were more likely to request the needed documents using CMC. This benefit to CMC (i.e., staff auditors collecting additional information they otherwise would not) may be a function of the nature of the request (i.e., a documentation request), which can be better suited for low social presence such as CMC, as it is information that can be made via a simple request instead of

anticipating a more complex discussion.

However, it cannot always be assumed that staff auditors will use CMC only for simple requests. Audit partners are concerned that without FTF communications, staff auditors may not obtain sufficient evidence and that they are over-relying on CMC as a surrogate for meeting with the client in-person. Exploring the notion that staff auditors are utilizing CMC more than partners would like, the current study examines staff auditors' discussions with management FTF versus CMC in a setting requiring more discussion between the auditor and client to gather the needed information and audit evidence. Thus, we examine the *quality* of the auditor-client interactions, particularly with regard to the extent of staff auditors' follow-up questions and level of skepticism. We find that given a setting where FTF dialogue is more appropriate to gather sufficient audit evidence, staff auditors using CMC ask fewer questions and are less skeptical in their discussions and questions of the client. While we do not vary the type of task or provide the choice of communication in this study, future accounting research can further our understanding in this area by considering auditors' *choice* of communication mode(s), and, in turn, the effects their choice has on audit quality.

Placing this study in a larger model of auditor/client communication may be helpful to fully interpret the findings of these individual studies. As research develops in this area, there are several interesting opportunities for research to further our understanding of communication and communication medium between auditors and their clients. For example, this study, as well as Bennett and Hatfield (2013), considers how the *auditor* is affected by characteristics of these discussions, while Saiewitz and Kida (2018) look at how *client management* is affected by communication medium. These studies necessarily hold one side of the conversation somewhat constant. Future research should consider truly interactive experimental designs that allow auditors and clients to interact, measuring a joint outcome. Additionally, due to the rich context of audit fieldwork and limitations of experiments, this may be an area of auditor/client behavior that is more easily accessed through field research (e.g., Guénin-Paracini, Malsch, & Tremblay, 2015).

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APPENDIX. Script of Responses to Auditors' Potential Questions Regarding.

NOTE: All participants had an initial personal interaction with the Controller (Interaction #1 below).

<INTERACTION #1>

“Hi. I’m Mr. Adams. I’ve agreed to help with the case study that you are doing today. When they asked me to help, they said that my accounting experience would be helpful. So, I think I’ll be able to handle any questions you may have.

If you have any questions, let me know. I’m here to help.”

NOTE: The following outlines questions that the authors anticipated being asked by auditor participants regarding the audit confirmation issue. These responses were discussed with audit partners prior to testing to ensure viability of responses. The “answers” below were provided (via e-mail for the CMC condition and in-person by the experimental confederate (Controller) in the FTF and FTF-dc conditions), **IF** the auditor participant asked the related question (in some format). If the auditor did not ask the question, the information was not provided.

< INTERACTION RE: BioTron International (“Confirmation 1”) >

Underlying Issue: Revenue Recognition & Cutoff (shipping terms)

Possible Question: The customer claims these items were not received until after year-end.

Answer: “The items were in-transit on 12/31, but the terms were FOB Shipping Point. Therefore, we properly recorded it as Revenue and a Receivable at 12/31 when it shipped, and the customer should have accounted for it as a payable on their end.”

Possible Question: Can I see the Bill of Lading for this shipment?

Answer: “Sure” (gives bill of lading, with the ship date in late December.)

Possible Question: Can I see the Contract for BioTron International?

Answer: “So, this is a standard contract that we use. As you can see, the terms are FOB Shipping Point; this sale, and the receivable, are properly accounted for.”

< INTERACTION RE: EZ Tech Support (“Confirmation 2”) >

Underlying Issue: Sales Discount not applied.

Possible Question: Why is there a discrepancy in the dollar amounts paid?

Answer: “We gave a discount to the customer; they did not pay the full amount. They do not owe us anymore for this item/invoice.”

Possible Question: Why is there a discount given?

Answer: “Sometimes we do that because they pay ‘early.’ Typically within 15 days.”

Possible Question: How much is the discount?

Answer: “Typically 2%.”

Possible Question: \$1900 is **more** than 2% or the approx. \$400 discount for paying early.

Answer: “Sometimes we give additional discounts to our best customers. I know we sell a lot of this product, especially to this particular customer. If we did, then the sales manager should have approved it.”

Possible Question: Can I see evidence that he/she did?

Answer: “Yes” (provides a copy of note in A/R system.)

Possible Question: Why would the Sales Manager approve nearly a 10% discount?

Answer: “The client was going to buy another product from a competitor. The competitor’s product is newer and is less expensive. But our product does the same thing.”

Possible Question: So is this the market value of this product declined?

Answer: “No. We still sold these items at the same price. This competitor’s product only came out late in the year. We have not reduced our prices.”

Possible Question: But you had to reduce the invoice in order to keep the sale. Does that not indicate that you’ll have to do that in the near future?

Answer: “Possibly, I guess.”

<INTERACTION RE: Nano Medical (“Confirmation 3”)>

Underlying Issue: Revenue Recognition & Cutoff (shipping terms)

Possible Question: The customer claims these items were not received until after year-end.

Answer: “The items were in-transit on 12/31, but the terms were FOB Shipping Point. Therefore, we properly recorded it as Revenue and a Receivable at 12/31 when it shipped, and the customer should have accounted for it as a payable on their end.”

Possible Question: Can we see Bill of Lading?

Answer: (Provide bill of lading, with the ship date in late December.)

Possible Question: Can we see the Contract/Agreement for the Sale?

Answer: “Here’s the contract for Nano Medical. Let’s see..., well, the terms we agreed to for Nano Medical are FOB Destination Point...So...I guess we should have accounted for this as a sale in January of THIS year, not in December of last year. So this isn’t accounted for properly.”

(continued).

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