

WORKING PAPER

"Sent from Mobile": The Influence of Communication Devices and Psychological Distance on Professional Skepticism-Enhancing Advice

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KEY TAKE-AWAYS

As audit firms increasingly rely on mobile phones for work-related tasks, understanding how different communication devices impact auditor behavior is essential for maintaining professional skepticism and audit quality. Using a setting where an audit supervisor writes a message in response to advice sought by a subordinate auditor, we examine how the audit supervisor's use of different communication devices (mobile phone versus PC) affects the extent to which their informal advice to the subordinate contains skepticism-enhancing language. We predict that audit supervisor's advice will be less skepticism-enhancing for the subordinate when communicated by a message sent through a mobile phone compared to a PC. However, this effect is expected to be stronger for advisors with lower compared to higher psychological distance to the task workflow. We conduct a 2x2 between-participants experiment and use Linguistic Inquiry and Word Count (LIWC) textual analysis to measure skepticism in participants' responses to advice sought by a subordinate. We find that a message conveyed through a mobile phones compared to a PC contains less skepticism-enhancing advice, but only when psychological distance is low. Our study underscores the behavioral implications of device choice and psychological distance, offering important insights for audit firms and practitioners as they navigate the increasing use of digital communication tools in fostering audit quality.

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"Sent from Mobile": The Influence of Communication Devices and Psychological Distance on Professional Skepticism-Enhancing Advice

Abstract: As audit firms increasingly rely on mobile phones for work-related tasks, understanding how different communication devices impact auditor behavior is essential for maintaining professional skepticism and audit quality. Using a setting where an audit supervisor writes a message in response to advice sought by a subordinate auditor, we examine how the audit supervisor's use of different communication devices (mobile phone versus PC) affects the extent to which their informal advice to the subordinate contains skepticism-enhancing language. We predict that audit supervisor's advice will be less skepticism-enhancing for the subordinate when communicated by a message sent through a mobile phone compared to a PC. However, this effect is expected to be stronger for advisors with lower compared to higher psychological distance to the task workflow. We conduct a 2x2 between-participants experiment and use Linguistic Inquiry and Word Count (LIWC) textual analysis to measure skepticism in participants' responses to advice sought by a subordinate. We find that a message conveyed through a mobile phones compared to a PC contains less skepticism-enhancing advice, but only when psychological distance is low. Our study underscores the behavioral implications of device choice and psychological distance, offering important insights for audit firms and practitioners as they navigate the increasing use of digital communication tools in fostering audit quality.

Keywords: audit, advice-giving, communication, mobile phone, psychological distance, professional skepticism

I. INTRODUCTION

Professional skepticism is a fundamental and well-established driver of audit quality (Nelson 2009). It is characterized by a “questioning mind” that encourages more extensive evidence-gathering and raises the threshold for determining sufficiency of that evidence (Nelson 2009). Research on professional skepticism has predominantly focused on how it manifests in auditors' judgments and actions that directly impact audit procedures (Hurtt et al. 2013). These studies typically measure outcomes that enhance audit quality, such as risk assessments, the planning additional procedures, or the request for further evidence from clients. Prior research has explored ways to strengthen auditors' motivation to exercise skepticism through interventions at the firm or team level, with an emphasis on the *recipient* of such interventions. That is, studies on the audit review process and in the advice-seeking context find that subordinate auditors heighten their skepticism when they are aware of their supervisors' preference for skepticism (e.g., Rich, Solomon, and Trotman 1997; Wilks 2002; Brazel, Hatfield, & Agoglia 2004; Griffith, Kadous, & Proell, 2020; Blum, Hatfield, & Houston, 2022). Thus, advice from superiors has been shown to play a pivotal role in shaping skeptical behaviors and judgments. However, there is limited understanding of how audit supervisors formulate their advice, the extent to which it contains language that fosters professional skepticism in their subordinates, and the factors that influence their advice choices. In this paper, we introduce the concept of professional skepticism-enhancing advice to the auditing literature, which we define as advice from audit supervisors containing language that will encourage their subordinates to engage in skepticism. This is particularly important in the audit setting, where audit supervisors are faced with competing demands of upholding high audit quality while managing the engagement budget and client relationships. These tensions are known to influence auditors' skepticism and thus will likely also influence the extent to which supervisors encourage their subordinates to exercise skepticism.

We examine two factors that may affect an audit supervisor's (henceforth, advisor's) use of professional skepticism-enhancing language in written, informal advice:¹ The communication device used (mobile phone versus PC) and the advisor's psychological distance to the task workflow (high or low). The global shift in work patterns, accelerated by the COVID-19 pandemic, has fundamentally altered how colleagues communicate (Bauer, Humphreys, & Trotman, 2022; Chen, Trotman, & Zhang 2022). Auditing, traditionally characterized by face-to-face, on-site team communication, now increasingly involves remote work, with greater reliance on mobile phones for tasks like advice-giving and coaching (Bauer et al., 2022). For example, in 2021, PwC US offered all employees the option to work remotely on a permanent basis (Kelly 2021). While most of the online work activities are done on the PC, research shows a growing shift to smartphone use (StatCounter 2022).²

In light of these trends, it is important to understand how the use of mobile phones versus PCs impact auditors' advice-giving behavior, specifically, the level of their professional skepticism-enhancing advice. We propose that the use of a mobile phone, as opposed to a PC, may reduce the level of skepticism-enhancing advice due to heightened self-interest associated with mobile phone use. Specifically, research suggests that mobile phone use amplifies self-focused behaviors, such as egocentric communication (e.g., increased use of "I" or "me"; Murthy et al. 2015), which may heighten self-interest during advice-giving. Additionally, mobile phones evoke stronger emotional attachment and personal connection than PCs (Hulme & Peters 2001; Turkle 2007; Konok et al. 2016; Ruan 2021), reinforcing this self-oriented dynamic. Audit supervisors often face competing demands during engagements, and the heightened self-interest associated with mobile phone

¹ By "informal advice-giving," we distinguish this from more formalized feedback process in auditing, such as performance reviews or workpaper reviews. These formal processes are typically documented, billed as part of the audit, and do not allow auditors discretion over when and how to seek advice (Perkins 2003, Kadous et al. 2013). In contrast, informal advice refers to ad-hoc guidance during an audit engagement, where the timing and manner of requesting advice are entirely up to the discretion of the advice seeker.

² For example, Slack, a commonly used workplace messaging platform, reported that 76% of its users access Slack on their mobile phones, with approximately one-fifth of workweek actions occurring via mobile phone (Janzer 2019).

use may diminish their willingness to encourage skepticism in their advice. Promoting skepticism can lead to increased engagement costs and strained client relationships (Nelson, 2009; Hurtt, Brown-Libur, Earley, & Krishnamoorthy, 2013), which may conflict with the advisor's self-interest, discouraging its inclusion in their advice. The inherently self-focused nature of mobile phone communication could thus contradict the goal of maintaining high audit quality. Consequently, we predict that mobile phone use leads to lower levels of skepticism-enhancing advice compared to PC use.

While variation in communication device usage introduces unique challenges to encouraging professional skepticism through advice, another important factor that influences the dynamics of advice-giving is psychological distance. Subordinates often receive advice via coaching from multiple advisors (Andiola, Bedard, and Kremin 2021), and they may seek advice from supervisors that are directly involved in the task (e.g., responsible for reviewing a completed workpaper), or more distanced from it (e.g., part of the engagement, but not directly involved in workpaper review) (Wilks 2002), affecting the psychological distance perceived by the supervisor. Psychological distance refers to the perceived "distance of a stimulus (object or event) from the perceiver's direct experience" (Bar-Anan, Liberman, Trope, & Algom 2007, p.610). While all advisors on an engagement face pressures that may negatively impact professional skepticism (e.g., budget pressures; strained client relations), higher psychological distance may reduce the saliency of these pressures. This is because greater psychological distance encourages broader, long-term thinking, prompting advisors to focus on overarching goals such as long-term audit quality and the advisee's professional development. As psychological distance increases, advisors may become less concerned with immediate negative consequences and more attuned to the long-term impact of professional skepticism. Therefore, we expect psychological distance to mitigate the adverse effects of

mobile phone usage by reducing the saliency of self-interest that may otherwise influence the advice.

To test our predictions, we conduct a 2x2 between-participants experiment in which auditors assume the role of a manager on an audit engagement. After receiving background information on the engagement and client, participants receive an email from a subordinate seeking advice on Revenue analytical procedures. We manipulate two independent variables: the device participants use to read and respond to the email (mobile phone or PC), as instructed in the case materials, and the level of psychological distance between the participant and the task workflow. Psychological distance is manipulated by varying the participant's level of direct involvement in the task for which the subordinate is seeking advice. In the low psychological distance condition, participants are responsible for the Revenue FSLI on the engagement. In the high psychological distance condition, participants are responsible for the Payroll FSLI but have experience with the Revenue FSLI. The primary dependent variable is the level of professional skepticism-enhancing advice. We define skepticism-enhancing advice as containing two dimensions: (1) a directive to exercise professional skepticism (herein also referred to as "overt professional skepticism") and (2) a persuasive message that encourages the advisee to act on this directive. To measure this first dimension, we use a refined textual analysis measure of the Aghazadeh, Hoang, & Pomeroy's (2021) LIWC score for professional skepticism. We measure the second dimension using a LIWC textual analysis score for persuasive language within the advisor's message. Our ultimate construct of interest is professional skepticism-enhancing advice, which is a combination of these two dimensions.³

³ We view this construct as requiring both dimensions to be examined—i.e., a message must contain BOTH a directive and persuasive language to be considered professional skepticism-enhancing. Thus, we advise caution when viewing these dimensions separately in the advice-giving context, as a message containing a directive but without persuasiveness is not meaningful, just as a message which is persuasive without the directive is not meaningful, in relation to our construct.

While we observe a device effect on the persuasiveness dimension of our measure—such that the advice communicated via mobile phones contained significantly less persuasive language (e.g., more tentative wording) compared to advice given over PCs—we do not observe a significant main effect when considering our aggregate measure for professional skepticism-enhancing advice. We do, however, find support for the prediction that the device effect is conditional on psychological distance. Managers with lower psychological distance provided significantly less professional skepticism-enhancing advice when using mobile phones, compared to PCs. However, for managers with higher psychological distance, the negative impact of mobile phone use was mitigated, and they even provided more professional skepticism-enhancing advice when using mobile phones. Interestingly, psychological distance had no significant effect when advice was communicated via PC, suggesting that the device itself may reduce susceptibility to barriers that hinder the advisor from providing professional skepticism-enhancing advice.

These findings underscore the critical roles of both device type and psychological distance in shaping the quality of audit advice. While mobile phones generally reduce the persuasiveness of advice, their broader impact on professional skepticism-enhancing advice depends on the advisor's psychological distance to the task workflow. Specifically, managers only indirectly involved in the task are less affected by mobile phone use, whereas managers directly responsible for the task workflow experience a decline in their level of skepticism-enhancing advice. As early career auditors are significantly influenced by their supervisors (e.g., Peecher 1996, Wilks 2002, Peytcheva and Gillett 2011), the advice they receive from their supervisors can significantly shape the level of professional skepticism they exhibit. These results, which explore varying levels of professional skepticism-enhancing advice, highlight the need for audit practitioners to carefully consider both technological and interpersonal factors in their internal communications. Advisor's distance to the task as well

as the choice of communication medium can have meaningful implications for the quality of their advice to subordinates and, ultimately, for audit outcomes.

This study contributes to the auditing literature by examining how advisor's choice of communication device and psychological distance influence their informal, within-team advice-giving, a critical yet understudied aspect of audit practice. While prior research has focused on face-to-face versus online communication, formalized feedback processes, and subordinate perspectives (Brazel, Hatfield & Agoglia 2004; Bennett & Hatfield 2013, 2018; Andiola & Bedard 2018; Andiola et al. 2019; Andiola et al. 2021; Blum et al. 2022; Durkin, Jollineau, & Lyon 2021; Clor-Proell et al. 2022), our study shifts the focus to the advisor's perspective in informal advice. This also complements existing literature, which predominantly emphasizes more formal advice settings such as workpaper reviews, performance feedback, or specialist advice (Ramsay 1994; Asare & McDaniel 1996; Harding & Trotman 1999; Gibbins & Trotman 2002; Tan & Tan 2008; Agoglia, Hatfield & Brazel 2009, Hux 2017, Gold, Kadous, & Leiby 2024). As noted in Westermann et al. (2015), interviewed auditors highlight the importance of real-time feedback from supervisors, with one stating that feedback received only after completing a task is "almost meaningless". While recognizing the importance and role of formal performance feedback, our study aims to shed light on the dynamics of informal advice from supervisors to subordinates. Additionally, by examining the advisor's perspective and the content of their advice, we offer a more comprehensive understanding of the advice context, that complements existing advice literature largely focused on the perspective of the advisee (e.g., Bonaccio & Dalal 2006, Kadous, Leiby & Peecher 2013).

We extend the notion of professional skepticism beyond the actions of task-responsible individuals (Hurtt et al. 2013) to the advice context, by introducing the concept of professional skepticism-enhancing advice as a distinct construct. This type of advice involves

not only directives to exercise professional skepticism but also persuasive language needed to influence the advisee's judgments and actions. We show how device type (mobile phone vs. PC) and psychological distance interact to shape the quality of this advice, offering new insights into how modern communication tools and team dynamics influence audit outcomes. We also build on Aghazadeh et al. (2021) by utilizing textual analysis to measure professional skepticism-enhancing advice, incorporating persuasive language as an important dimension. We further validate this textual analysis measure through manual coding, contributing to the ongoing discussion on the validity of analyzing rich textual data using LIWC measures (Aghazadeh et al. 2021).

II. BACKGROUND AND HYPOTHESIS DEVELOPMENT

Advice-giving in audits

Auditors seek advice from various sources, including subordinates, peers, specialists, and supervisors (Westermann, Bedard, & Earley 2015; Hux 2017; Causholli, Floyd, Jenkins, & Soltis 2021). Research shows that advice obtained from supervisors within the team can be particularly effective in enhancing audit quality (Bobek, Daugherty, & Radtke 2012). In addition, advice from a superior can make a subordinate feel supported, leading to improved performance and reduced work fatigue (Jefferson, Andiola, & Hurley 2022). While much of the advice literature has concentrated on the advisee's perspective, focusing on factors that influence advice-taking and reliance on advice (Bonaccio & Dalal 2006), less attention has been given to advice-giving and the advisor's role in shaping the quality of the advice provided.

In auditing, most studies on advice-giving are situated in the review process (Ramsay 1994; Asare & McDaniel 1996; Harding & Trotman 1999; Gibbins & Trotman 2002; Tan & Tan 2008; Agoglia et al. 2009). The review process involves firm-driven, formal, and mandatory advice typically given after an audit procedure has been completed. However,

informal knowledge-sharing and advice-giving, which occur concurrently with audit procedures, also play a critical role in the auditing process (Kadous et al. 2013, Bauer et al. 2020) and in shaping audit quality in real-time. Auditors themselves highlight that a large part of learning how to perform high quality audits comes from “on the job” training, which includes observing others, asking for advice, and receiving coaching (Westermann et al. 2015). Supervisor behavior, in particular, has been shown to significantly influence a subordinate’s professional development (Smeets, Gijssels, Meuwissen, & Grohnert 2021). Thus, informal advice-giving not only impacts the immediate quality of audit procedures but also contributes to the development of high-quality auditors.

Advice-giving and professional skepticism

Professional skepticism is widely recognized as a key factor contributing to audit quality. Numerous studies in auditing have investigated how various factors impact the level of professional skepticism exercised by auditors (Nelson 2009, Hurtt et al. 2013), often focusing on the auditor’s actions during audit procedures. However, while much of the existing literature emphasizes the role of the advisee—the auditor performing the task—it tends to overlook the factors influencing the extent to which an advisor encourages professional skepticism in their advice. Given that subordinates are highly influenced by their supervisors (Peecher 1996; Wilks 2002; Peytcheva and Gillett 2011), the level of professional skepticism conveyed in a supervisor’s advice is likely to shape the advisee’s actions. This, in turn, can create a trickle-down effect, where the advisor’s level of professional skepticism encouraged in their advice impacts the advisee’s behavior and, by extension, the quality of the audit.

Importantly, we argue that the level of professional skepticism-enhancing advice comprises both a directive (i.e., overtly suggesting further investigation or caution) as well as persuasive language emphasizing the directive. Thus, an advisor might propose specific

skeptical actions in their message, but may also convey, with varying levels of certainty, what the advisee should or should not do, thereby affecting the message's persuasiveness. This is particularly important in hierarchical settings like auditing, where subordinates often look to superiors for cues on how to behave (Kadous, Leiby, Peecher 2013). Unlike formal advice settings, informal advice-seeking lacks an audit trail and is not directly tied to engagement economics, allowing the advisee greater discretion in how to act on the advice (Kadous et al. 2013). As a result, the element of persuasiveness becomes crucial: Professional skepticism in advice not only involves suggesting further investigation or caution, but also framing the advice in a way that increases the likelihood that the advisee will act upon it.

A key factor that determines whether advice is framed as persuasive and thus relied upon by an advisee is the advisor's level of confidence in the advice they give. Research on power dynamics in communication highlights that language reflecting confidence heightens perceived power, which increases the likelihood of the advisee taking action (Korner, Overbeck, Korner, & Schultz 2023). There are two ways in which this confidence is reflected in advice: use of (1) more confident or assertive language, (2) and less tentative language. Expressed confidence through more confident or assertive language "reflects a speaker's certainty or commitment to a statement and can be associated with one's trustworthiness or persuasiveness in social interaction" (Jiang & Pell 2017, p.106). Thus, we expect that the level of certainty communicated in the advice reflects an advisor's confidence, thereby enhancing the persuasiveness of their advice (Sah, Moore, & MacCoun 2013).

Alongside the importance of confident and assertive statements, research highlights that tentative language (versus clear and decisive language) is negatively associated with persuasiveness (Packard & Berger 2017). Tentative language, such as "might," "could," or "possibly," reduces perceived confidence and introduces uncertainty, and signals to the advisee that there is room for doubt or alternative actions. In the advice-taking literature, such

language is associated with a weaker persuasive impact, often causing recipients to delay or avoid action due to the advice's perceived lack of decisiveness (Bonaccio & Dalal 2006). Translating these findings to the audit setting, tentative language and the resulting uncertainty thus give the recipient greater discretion in deciding whether to act in a professionally skeptical manner. Therefore, advice designed to promote professional skepticism is more persuasive when framed with certainty, as it minimizes doubt and reinforces to act skeptically. Concluding, strong professional skepticism-enhancing advice conveys an overt skeptical directive which is communicated with confidence and certainty.

In audit engagements, the pressures and constraints supervisors face might influence their advice. Supervisors need to strike a balance between promoting professional skepticism and managing budget constraints, maintaining client relationships, and avoiding conflict (Nelson 2009; Brazel et al. 2016; Bauer et al. 2020; Brazel et al. 2023). These pressures can lead to self-interested advice that subtly prioritizes personal or engagement-level outcomes over skepticism. For example, a supervisor concerned about being held accountable for budget overruns may—either consciously or unconsciously—frame advice in ways that discourage subordinates from performing additional procedures or at least delay their action. Even when not overtly biased, self-interest can pervade advice through subtle linguistic cues (Schultheiss 2013). By analyzing the language used in advice-giving, we can examine these nuanced influences of self-interest. We propose that the salience of self-interest varies depending on the type of device being used for advice-giving, specifically comparing mobile phones to PCs.

Device and communication

With technological advancements and the increased shift to remote work, face-to-face communication is becoming less prevalent, while the use of electronic devices such as PCs and mobile phones is on the rise. These devices may not only facilitate communication but

also shape how advice is framed and interpreted. Specifically, we examine whether using a mobile phone versus a PC affects the level of professional skepticism-enhanced advice. While these devices have not been directly compared in prior auditing research, related studies on digital versus in-person communication offer relevant insights. For instance, Bennett and Hatfield (2018) showed that, in a client-facing context, auditors exercise more professional skepticism in face-to-face interactions versus a computer-mediated communication. Similarly, Brazel et al. (2004) reported higher performance in hierarchical peer review conducted face-to-face versus when employing computer-mediated review.

Building on prior literature in communication research, we argue that the salience of a supervisor's self-interest may vary depending on the communication device used for advice-giving. Mobile phones, in particular, have been shown to foster egocentric behavior (Katz & Byrne 2013, Murthy et al. 2015), as these devices are more attached to the self (Park & Kaye 2018; Ross & Bayer 2021) and thus may lead users to focus more on their own perspective and less on that of others. This self-focus could make self-interest more influential communicating via mobile phones. Additionally, mobile phone usage may amplify general egoistic language and self-centered messaging (Murthy et al. 2015). Moreover, mobile phones are associated with higher emotional load compared to other devices (Hulme and Peters 2001; Turkle 2007; Beer 2012; Vincent 2015; Konok et al. 2016; Obushenkova et al. 2018). Emotion plays a critical role in decision-making (Bhattacharjee & Moreno 2002, Baumeister & Vohs 2007), and the personal connections people experience with mobile phones may increase the likelihood of supervisors acting on their own feelings rather than exercising objectivity. This tendency to prioritize the self may be particularly pronounced in situations where supervisors face potential negative consequences, such as budget overruns or strained client relationships. Auditing engagements often create tension between the incentive to exercise professional skepticism and the pressure to stay within budget and keep

the client satisfied. Under these conditions, using a mobile phone may heighten self-interest, resulting in less professionally skeptical advice.

In contrast to mobile phones, PCs are more narrowly associated with professional use and typically have less overlap with personal life. While mobile phones often serve dual purposes—facilitating work communication alongside personal activities such as family interactions, social media, or storing personal photos—PCs are predominantly used more distinctly for work-related tasks. This distinction suggests that PCs may evoke less personal attachment and thus less egocentric focus compared to mobile phones. Supporting this notion, Bennett and Hatfield (2018) found that computer-based communication leads to fewer relationship-building statements with clients, highlighting the impersonal nature of the device. The reduced emotional connection to PCs may foster greater objectivity in advice-giving. As emotions often serve as informational inputs in decision-making, the diminished emotional attachment to PCs may encourage advice-givers to focus less on self-interest and more on their professional responsibilities, promoting more skepticism-enhancing advice.

As discussed, self-interest in advice-giving can manifest both overtly, such as explicitly recommending less additional work, or more subtly, through messaging that lacks persuasive strength. Overall, we expect that professional skepticism-enhancing advice will be less compromised when advice is delivered via a PC compared to a mobile phone. This expectation leads to the following hypothesis:

H1: A supervisor is more likely to provide more professional skepticism-enhancing advice when communicating via a PC compared to a mobile phone.

Psychological distance and advice

Another factor that can shape the quality of advice and mitigate self-interest is the psychological distance between the advisor and the task workflow. While device choice can affect the personal and emotional focus of advice, psychological distance shifts attention by influencing how "close" or "removed" an individual feels from the task or decision at hand.

As discussed, advice from supervisors is often influenced by engagement pressures, allowing self-interest to permeate their advice. However, research shows that redirecting focus away from an advisor's immediate perspective toward the advisee's perspective or adopting a broader, abstract perspective can lead to less self-focused and higher quality advice (O'Malley & Becker 1984; Pahl 2012; Li, Zhan, Fan, Liu, Li, Sun, & Zhong 2018).

Psychological distance, defined as the "distance of a stimulus (object or event) from the perceiver's direct experience" (Bar-Anan, Liberman, Trope, & Algom 2007, p.610) can facilitate this shift in focus. Contrasts such as "here versus there" or "we versus others" exemplify low versus high psychological distance (Trope & Liberman 2003). According to construal level theory, higher psychological distance is associated abstract, high-level, forward-thinking mental construals, while lower psychological distance promotes more concrete, immediate, and detail-level thinking (Trope, Liberman, & Wakslak 2007; Trope & Liberman 2010).

In an audit context, psychological distance could be influenced in many ways: including considering the why vs. how for evidence assessment (Rasso 2015; Backof, Carpenter, and Thayer 2018), and examining the physical distance via remote vs. in-person teamwork (Weisner & Sutton 2015). In an advice-giving context, we argue this psychological distance can be influenced by the advisor's role in the workflow. For example, a manager with low psychological distance is directly involved in the workflow of a specific audit task to which the advice relates (e.g., responding to advice on Revenue and being responsible for Revenue). A manager with high psychological distance is not directly involved in the workflow of the task (e.g., responding to advice on Revenue while normally overseeing Accounts Payable).⁴

⁴ Though this is just one example of how psychological distance could manifest in an auditing engagement, this is how we operationalize high vs. low psychological distance in our study.

Auditors may seek advice from advisors with varying levels of psychological distance to the task workflow for different reasons. For instance, an auditor may approach a supervisor not directly involved in the workflow of the task (high psychological distance) to avoid potential negative impressions or judgments associated with raising issues (Brazel et al. 2016; Nelson, Proell, & Randel 2016; Griffith, Kadous, & Proell 2020). Conversely, they may seek advice from a supervisor who is directly involved in the workflow of the task (low psychological distance) as they can then better adapt to their direct supervisor preferences when concerned about workpaper reviews (Wilks 2002). As such, both low and high psychological distance scenarios are realistic and common in audit engagements.

In scenarios where advice is sought from a supervisor with high psychological distance—someone not explicitly involved in the workflow of a specific audit task—this supervisor is more likely to adopt more of a “third-person” perspective when giving advice. Although this supervisor remains accountable for engagement-level pressures, their detachment from the subordinate’s immediate task reduces their direct connection to the subordinate’s actions. Their higher psychological distance allows for a broader focus that extends beyond immediate task-related concerns. Research shows that higher psychological distance decreases an individual’s focus on their subjective experience (Pronin, Olivola, & Kennedy 2008), enhances self-control, and lowers risk perceptions (Trope et al. 2007). For a supervisor, this broader perspective can attenuate the salience of immediate costs associated with promoting professional skepticism, such as the risks of budget overruns or potential conflict with the client. Instead, it encourages judgments informed by more objective, long-term considerations. In the context of advice-giving, this shift may enable the supervisor to prioritize what is best for the audit, the firm, and the subordinate, rather than focusing narrowly on self-interested considerations. In contrast, lower psychological distance

promotes lower-construal thinking, which tends to be more narrow and focused on the immediate and concrete costs and benefits to promoting skepticism.

In this context, we expect that increasing psychological distance between the advisor and the task workflow will reduce the influence of the supervisor's self. As outlined in H1, supervisors are expected to give more self-interested advice when communicating via a mobile phone due to its egoistic, personal, and emotional nature. However, the degree to which this influences an advisor likely depends on the psychological distance between the advisor and the task workflow. Higher psychological distance has been associated with increased self-control and higher risk tolerance, characteristics linked to high-level, abstract thinking (Trope & Liberman 2010). Advisors with higher psychological distance are therefore expected to be less influenced by the use of mobile phone since any potential personal consequences of unplanned audit procedures might be less salient owing to higher psychological distance. In contrast, advisors with lower psychological distance are more likely to focus on their subjective experiences and self-interest, including concerns about budget overruns or client relationships and these concerns are further strengthened by the use of mobile phone. As a result, the self-interest effects of mobile phone use in providing professional skepticism-enhancing advice are likely amplified when psychological distance is low compared to high. This leads to the following hypothesis:

H2: The effect of device on professional skepticism-enhancing advice will be stronger for advisors with lower compared to higher psychological distance.

III. METHOD

Participants

Ninety-seven auditors based in the Netherlands, with an average of 17 years of audit experience, participated in the study. Of the participants, 87 percent for a Non-Big Four firm, while 13% are employed at a Big-Four firm. Thirty-one (sixty-eight) percent of the participants are females (males). Almost all participants (99 percent) report having experience

with revenue analytical procedures, the task type in the experimental instrument. The Foundation for Auditing Research (FAR) facilitated access to participants through three live, in-person sessions, during which we administered our instrument.

Design

To examine the research questions, we performed a 2x2 between-participants experiment involving senior auditors (i.e., auditors in manager, senior manager, director, or partner roles within their firm). This participant selection was based on the goal of obtaining individuals with substantial experience in giving advice to subordinates. Participants were randomly assigned to one of the four experimental conditions. We recruited participants from large and medium-sized (13 and 84, respectively) auditing firms in the Netherlands.

Participants assumed the role of a manager on a hypothetical audit engagement. We adapted the experimental instrument used in Brazel et al. (2016), which originally required participants to evaluate an audit senior's performance. We modified the instrument so that participants would instead give advice to a senior on the engagement. Identical to the original case, the senior on the engagement has identified a potential discrepancy in the Revenue account by employing a procedure utilizing non-financial measures (which deviates from prior year procedures) in addition to the standard financial measures (which show no discrepancies). Instead of acting independently, the senior then seeks advice from the manager on how to proceed.

To heighten engagement pressure, we emphasized the importance of this client in all conditions, highlighting the connection between the participant's financial and career incentives to staying within budget and maintaining a positive client relationship. This manipulation created competing pressures: the professional obligation to advise further investigation versus personal incentives to dismiss the non-financial finding and avoid additional procedures. Since the discrepancy identified was not clearly indicative of a

misstatement, participants had latitude to provide less professionally skeptical advice if motivated by self-interest.

Independent Variables

Communication device

The first independent variable is the device used for advice communication: a PC or a mobile phone. To ensure consistency in cognitive effort across conditions, the instrument was paper-based. Participants were only directed to their respective device when they received a message in the form of an email from the subordinate. After reading the subordinate's email and replying to it on their respective device, participants returned to the paper-based instrument to continue. This design choice minimizes overall exposure to the device, ensuring that case materials and the questionnaire are presented in the same format for all participants. Consequently, any cognitive differences related to the using each device are limited to the communication of advice, rather than the reading of background materials or answering post-experiment questions.

To ensure that the readability and comprehension of the email from the subordinate do not differ significantly between devices, we administered a brief comprehension survey among a group of colleagues, which indicated no significant variance between understanding of the materials depending on device. In addition, we also include a question related to the readability of the email from the subordinate, "How readable was the information contained in Tom's email attachment?" with a 5 likert scaled response from "Very easy to read" to "Very difficult to read". No association was found between device and readability (with both means being in between "somewhat easy to read" and "neither easy nor difficult to read"; $t(94)=1.360, p=.681^5$). Thus, we have reasonable confirmation that the viewing of the materials on each device were readable and device did not result in differential

⁵ For all statistical analyses mentioned in this paper, the results reported are two-tailed unless otherwise stated.

comprehension of the materials. We argue that the device usage itself, rather than the readability of materials, is the key factor behind any differences observed in the results between the device conditions.

Psychological Distance

The second independent variable is psychological distance to the task workflow, which is manipulated as low versus high. In the low psychological distance condition, we ask participants to assume the role of a manager with direct involvement in the area the subordinate is working on (i.e., Revenue). In the high psychological distance condition, participants were asked to assume the role of a manager that oversees the Payroll area, but is temporarily advising on Revenue due to the unavailability of the regular Revenue manager. To control for knowledge differences, all managers were described as having prior Revenue experience from a previous engagement.

One concern with this approach is that factors influencing self-interest (budget, deadlines, & client relationship) may fundamentally differ between these two types of managers with different psychological distance to the task workflow. To address this, the case was designed so that all participants were given a sense of responsibility over budget, timing, and client relationship, thereby ensuring that all participants experienced a similar level of pressure to avoid encouraging additional procedures (i.e. self-interest). Three Likert scale questions measured participants' perceived pressures to (1) meet the deadline, (2) stay on budget, and (3) avoid client conflict on a 5-point scale from "I felt no pressure" to "I felt great pressure". No significant differences were observed between conditions ($t(95) = .398, p = .391$; $t(95) = .1113, p = .484$; and $t(95) = 4.868, p = .177$, respectively), confirming that self-interest pressures were consistent across conditions. Though we want to confirm this self-interest is present for both levels of psychological distance, we predict that these pressures are more influential to managers with low versus high psychological distance.

Dependent variable

To measure the level of professional skepticism-enhancing advice (henceforth referred to as “*Skeptical Advice*”), we analyze the open-ended responses provided by participants to a subordinate’s request for advice. Participants wrote their responses as emails on their assigned devices, and these texts were systematically evaluated using the Linguistic Inquiry and Word Count (LIWC) textual analysis tool. We began by applying LIWC dictionaries conceptually linked to overt professional skepticism, as identified in prior research (Aghazadeh et al. 2021). Specifically, we used the *Insight* and *Cause* dictionaries, which include words such as “think”, “know”, “because”, and “since.” These words reflect cognitive processes that indicate an individual’s attempt to understand and assess information, aligning with the characteristics of professional skepticism, including a questioning mind, suspension of judgement, search for knowledge, and interpersonal understanding, as described by Hurtt (2010).

Building on this foundation, we examined additional dictionaries necessary to capture more subtle language cues that could influence the persuasiveness of a skeptical message. To refine the LIWC measures for professional skepticism developed by Aghazadeh et al. (2021) to fit our advice setting, we also incorporate the *Certitude* and *Tentative* language dictionaries into our measure for Skeptical Advice. The *Certitude* dictionary includes language such as “always”, “never”, “really”, and “of course,” while the *Tentative* dictionary includes language such as “maybe”, “perhaps”, “guess”, and “if.” Both dictionaries are part of the *Cognition* dictionary in LIWC, similar to *Insights* and *Cause*, and thus focuses on a person’s psychological processes when giving advice.⁶ As Aghazadeh et al. (2021) discuss,

⁶ In the LIWC dictionary, there are different dimensions including, linguistic variables, drives, cognition, affect, social processes, culture, lifestyle, physical, states, motives, perception, conversation, and punctuation. The cognition category most closely relates to psychological processes, which is in line with our interest in professional skepticism. The cognition dictionary includes: insight, cause, discrepancy, tentative, certitude, differ, & memory (Boyd, Ashokkumar, Seraj, & Pennebaker 2022). When reviewing the sub-dictionaries we leveraged Aghazadeh et al. 2021’s rationale for selecting insights & Cause as these dictionaries reflect a questioning mind. When we consider persuasive language we only find

professional skepticism is a style of thinking, and thus this category of dictionaries is well-suited to capture this mindset.

As discussed in the theory section, *Skeptical Advice* arguably also incorporates a persuasive aspect, reflected in language reflecting confidence and certainty and the absence of tentative language. In other words, effective advice requires not only recognizing a discrepancy but also the advisor's certitude to advocate for additional action. The LIWC dictionaries of *Certitude* and *Tentative* are leveraged to capture these aspects. *Certitude* language—such as “must,” “absolutely,” or “definitely”—conveys confidence and decisiveness, thus enhancing the persuasiveness of professionally skeptical advice. Conversely, tentative language—such as “maybe,” “perhaps,” or “could”—signals uncertainty, undermining the strength of the message. As Tausczik and Pennebaker (2009) note, the use of tentative language often reflects underdeveloped thinking, which is less likely to prompt action. This aligns with our argument that tentative language diminishes the perceived certainty of advice, making it less compelling and potentially reducing the likelihood that the advisee will act on it.

To illustrate, consider a message from a manager instructing a subordinate to follow up on an identified discrepancy with a client, conveyed with certainty. Now, imagine the same message, but with added hesitation, pre-rationalization of the discrepancy, or vagueness (e.g., “maybe” or “if”). This subtle change can dilute the professional skepticism of the advice, qualifying what might otherwise be a clear directive to be skeptical. In the first instance, the message provides a clear course of action, leaving little room for discretion. In the second, the less certain and more tentative language opens the door for the advisee to exercise their own discretion, potentially reducing the likelihood of acting skeptically.

tentative and certitude sub-dictionaries contain language that reflects persuasiveness as discussed in this section. The other sub-dictionaries are excluded for our analysis.

It is possible that an advisor may consciously know that acting professionally skeptical is the right response, but subconsciously convey subtleties in their language that allow the advisee to feel less certain about following the advice. Prior research has shown how language can reveal unconscious motives of individuals (Schultheiss 2013). In our setting, the self-interest motive for acting less skeptically could come through both consciously—by advising less professionally skeptical follow-up—and/or subconsciously—by using tentative or offsetting language that diminishes the strength of the advice. Thus, we aim to capture both conscious and subconscious linguistic cues that could enhance or offset the strength of *Skeptical Advice*.

As the concept of *Skeptical Advice* differs from direct professionally skeptical behavior, we refine our textual measure to capture both overt and more subtle linguistic cues. To achieve this, we subtract the *Tentative* language score in our overall Skeptical Advice measure, offsetting the contributions of the *Insight*, *Cause*, and *Certitude* scores. This adjustment decreases the overall Skeptical Advice score when participants use more tentative language in their responses. This combined measure provides a holistic evaluation of the overall level of Skeptical Advice, accounting for both overt and subtle linguistic elements.

IV. RESULTS

Manipulation checks

To verify the success of the device manipulation, we first test whether the device that participants reported having used to give advice matched the device they were assigned in their condition (“Which device did you use to respond to Tom’s question?”). Ninety-six percent of the participants in the mobile phone condition indicated they used their mobile phone, while eighty-nine percent of participants in the PC condition reported using a PC ($X^2(1) >= 70.276, p < .001$). Additionally, to examine whether the mobile phone fosters stronger personal connection than the PC, we asked participants, “To what extent do you feel

personally connected to your (mobile phone)/(PC)?”. Responding on a scale ranging from 0 (“Not at all”) to 10 (“Completely”), participants in the mobile phone condition felt significantly more connected to the device (5.28), compared to those in the PC condition (4.00; $t(94)=4.559$, $p=.032$). Furthermore, when asked, “To what extent is your (mobile phone)/(PC) part of you and who you are?”, participants responded on a scale ranging from 0 (“Not at all”) to 10 (“Completely”), and those in the mobile phone condition, again, reported marginally higher ratings (5.80) than those in the PC condition (4.83; $t(94)=7.379$, $p=.095$).

To measure the effectiveness of the psychological distance manipulation, we asked participants “According to the case information, what was your role in relation to Tom?” Ninety-six percent of the participants in the low psychological distance condition indicated they were Tom’s direct manager, while seventy-four percent of participants in the high psychological distance condition reported being Tom’s indirect manager ($(X^2(1) >= 50.175$, $p < .001$).⁷ We further measured psychological distance using two approaches. First, we asked participants a general distance question: “When completing this case, how close or distant from Tom’s actions did you feel regarding the Revenue analytical procedures” (on a scale with endpoints ranging from 1 [“Close to Tom’s actions”] to 10 [“Distant to Tom’s actions”]). Participants in the low psychological distance condition reported feeling significantly closer to the subordinate’s actions (7.10) compared to those in the high psychological distance (6.25; $t(95)=3.916$, $p=.041$).

Second, we assessed the four dimensions of psychological distance—social, temporal, spatial, and hypothetical⁸— as defined by Trope and Liberman (2010), leveraging language from Wang et al. (2019). We then created a cumulative Psychological Distance measure by

⁷ We also examined our main ANOVA removing all failed manipulation checks leaving us with $n=78$ (not tabulated). The results are equivalent to the primary results reported in the paper.

⁸ For example, for the temporal distance dimension, we asked “Do you think any effects of Tom’s actions regarding the Revenue analytical procedures will be felt immediately” and the scale ranged from “Effects of Tom’s actions will be felt in the future” (high psychological distance) and “Effects of Tom’s actions will be felt immediately” (Low psychological distance).

averaging the responses across these dimensions. Participants in the low psychological distance condition reported feeling a lower psychological distance as compared to those in the high psychological distance condition (6.25 vs. 5.69 respectively; $t(95)=1.688$, $p=.012$). Together, these results confirm that our manipulations of device and psychological distance were effective.

Tests of hypotheses

We run an ANOVA with the refined LIWC measure for *Skeptical Advice* (see Table 1 for cell means, ANOVA results and simple effects). As described in the method section, the measure was constructed by incorporating *Insights*, *Cause*, and *Certitude* as score-increasing measures and *Tentative* as a score-decreasing measure. These LIWC scores were calculated as word densities; i.e., the number of dictionary words found divided by total word count. Following the approach of Aghazadeh et al. (2021), we performed quality control procedures and removed words that were taken out of context, and we reviewed samples to confirm that high and low scores appropriately reflected high and low levels of *Skeptical Advice*—i.e., language indicating the subordinate should pursue follow-up procedures. To control for systematic word count differences between responses on in mobile phones versus PCs, we included word count as a covariate in the ANOVA.

For the main effect of device (H1), the results show no significant differences in the *Skeptical Advice* levels between mobile phone (5.87) and PC conditions (6.35) ($F=1.393$, $df=1$, $p=.241$). Thus we reject H1. However, the significant interaction term ($p=.016$) suggests that the device effect may be contingent on psychological distance, as predicted in H2 (see Figure 1). Simple effects analyses reveal that direct managers (low psychological distance) provided significantly lower *Skeptical Advice* when using mobile phones (4.61) compared to PCs (6.85, $p=.014$). However, for indirect managers (higher psychological distance), the effect of device on *Skeptical Advice* is not significant (5.87 for PCs and 7.24 for

mobile phones; $p=.398$).⁹ In other words, advice conveyed through a mobile phone encourages more skepticism than when conveyed through a PC, but only for managers with low psychological distance (i.e., direct managers). The effect is entirely mitigated when managers are more detached from the task workflow through higher psychological distance, as they provide consistently higher levels of *Skeptical Advice*. Overall, our results confirm hypothesis H2.

Supplemental analysis

Validation of refined Professionally Skeptical-Enhanced Advice LIWC measure

In order to further validate the refined LIWC measure used above, we also performed manual coding using a predetermined rubric (see Appendix 2). This rubric was further refined based on an initial review of responses to better capture the overall level of *Skeptical Advice*. Our manual coding process identified two scoring categories that effectively captured the nuances of professional skepticism in the advice. The first category was coded as +1 for any ideas/phrases indicating doubt, curiosity, or a critical approach toward the provided data, with additional points given when going to the client is mentioned. We also include language that conveys concrete steps or certainty regarding follow-up. These responses reflect a challenge to the information or a recommendation to investigate further. The second category was coded as -1 for ideas/phrases that mitigate or offset skepticism by rationalizing the issue, prioritizing client relations or budgets, or suggesting that the fluctuation might be acceptable under certain conditions. Appendix 3 provides examples illustrating how responses were manually coded.

After coding, we calculated the density of professionally skeptical language by dividing the total score by the word count, consistent with the LIWC approach. The resulting measure scores were analyzed using the same ANOVA as in the main analysis (see Table 2).

⁹ We also run this ANOVA when controlling for Experience (in months) and find similar results (not tabulated).

This yielded a result that was in line the cumulative LIWC score above, as there were no significant main effects but there was a significant interaction ($p=.033$). Simple effects indicate a significant difference in the low psychological distance condition in that participants using mobile phones gave significantly less skeptical advice than those using PCs (3.75 vs. 5.10, $p=.022$), while indirect managers showed no differences in levels of skepticism between devices ($F=.412$, $df=1$, $p=.523$). Overall, this gives us comfort that the cumulative LIWC measure used above in our main analysis is the appropriate measure to use for textual analysis to analyze Skeptical Advice levels.

Analysis of Overt Professional Skepticism vs. Persuasiveness in Advice

We also separately analyze the LIWC score from Aghazadeh et al. (2021) that serves as our measure of *overt* professional skepticism in our aggregated measure of *Skeptical Advice* (see Table 3 and Figure 2). When using this measure as the dependent variable, we again see no significant main effect of device ($p=.695$). However, when we examine the interaction, we observe a significant interaction between our independent variables ($p=.050$). However, when examining the simple effects of this interaction, we find that the pattern differs from the primary results. Direct managers (i.e., low psychological distance) are not affected by device type; their overt skeptical advice is consistent for mobile phone (7.32) and PC (8.45, $p=.286$). Meanwhile, indirect managers give marginally *more* overtly skeptical advice via their mobile phones (9.36) as compared to their PCs (7.49, $p=.096$). This suggests that mobile phones might even have a boosting effect for overt professional skepticism in advice from indirect managers. This finding also confirms that our main results are partly driven by the inclusion of *Certitude* and *Tentative* dictionaries as measures of persuasiveness.

In order to isolate the effect of persuasion, we perform the same ANOVA using the score based on the LIWC *Certitude* and *Tentative* dictionaries as the dependent variable. In other words, the persuasive language measure is *certitude* less *tentative* LIWC score (see

Table 4 and Figure 3). We find a significant main effect of device type on the use of persuasive language, in that participants communicating with their mobile phone use significantly less persuasive language in their responses (-2.43) as compared to those communicating with their PC (-1.61, $p=.019$). However, we find no significant interaction effect between device and psychological distance ($p=.360$).

These findings indicate that mobile phones alone do not necessarily reduce overt professional skepticism but do result in less persuasive advice due to higher use of tentative language. Importantly, the hesitancy in advice associated with tentative language was not influenced by psychological distance. The combined results suggest that overt professional skepticism and persuasiveness play distinct but complementary roles in influencing overall professional skepticism-enhancing advice. Mobile phones appear to impact these two dimensions differently, reducing persuasiveness while potentially amplifying overt skepticism in certain contexts.¹⁰ Future research could look further into why devices and psychological distance have unique influences on these sub-dimensions.

V. CONCLUSION

With the shift from in-person auditing to remote work, the methods auditors use to perform their tasks and communicate are undergoing significant transformation. Firms must carefully assess how these changes impact auditors' judgments and behaviors, particularly in relation to audit quality, which fundamentally depends on the exercise of professional skepticism. Indeed, professional skepticism remains a cornerstone of audit quality, relevant to practitioners, firms, and regulators alike (Nelson 2009; PCAOB 2012; Hurtt et al. 2013; IAASB 2015; KPMG 2016).

¹⁰ As stated in footnote 3, we caution against interpreting meaning from these subdimensions distinctly in relation to the construct of interest. We believe it is interesting to examine the subdimensions but these must be viewed in conjunction to make interpretations regarding our construct of interest: professional skepticism-enhancing advice.

This study explores how the modern audit environment—characterized by digital communication, including mobile phones—affects professional skepticism when higher-level auditors provide advice to subordinates. While prior research shows that auditors often encounter factors that deter professionally skeptical behavior (Nelson 2009, Brazel et al. 2016, Bauer et al. 2020, Brazel et al. 2023), it remains unclear whether this also applies to the advice provided by higher-level auditors, such as managers and partners, in addition to direct auditing tasks. This study contributes to the literature by examining advice-giving in the context of modern audit engagements from the perspective of the advisor, with a particular focus on informal advice rather than a formalized feedback processes. We find that the professional skepticism contained in advice conveyed by mobile phones versus PCs threatens to suffer especially when these higher-level auditors are closer to the task workflow.

Understanding these dynamics is critical, as we know from prior research that lower-level auditors are significantly influenced by the actions and guidance of their superiors (Peecher 1996, Wilks 2002, Peytcheva and Gillett 2011). Firms and practitioners must consider interventions to mitigate the potential negative impacts of digital communication. For example, encouraging subordinates to seek advice from superiors not directly involved in the task workflow could promote a more objective and well-rounded perspective while reducing the likelihood of receiving self-interested advice. Ultimately, examining how team dynamics and communication methods influence the professional skepticism of higher-level auditors when advising subordinates has direct implications for improving audit quality and remains highly relevant for practice.

This study contributes to the professional skepticism literature by examining how professional skepticism can vary in advice-giving. While informal advice-giving is a less direct measure of professional skepticism, it plays a critical role in knowledge sharing and is thus consequential for audit quality. Understanding how levels of professional skepticism-

enhancing advice vary when giving advice is an important yet understudied aspect of professional skepticism within the auditing process.

This study also advances the concept of professional skepticism by distinguishing between overt professional skepticism, often studied in formal audit tasks, and a less direct form of professional skepticism reflected in advice-giving. We extend prior research by refining a previously established measure of professional skepticism using LIWC textual analysis (Aghazadeh et al. 2021). Specifically, we adapt this measure to capture the nuances of advice-giving by introducing the role of persuasion in language, which can strengthen or weaken the impact of skeptical messages. To ensure the robustness of this refined measure, we validate it through manual coding. This systematic approach provides a replicable framework that future researchers can use to study and understand professional skepticism-enhancing language in advice-giving. By bridging the gap between formal and informal aspects of professional skepticism, this study offers valuable insights into how language shapes auditor behavior.

We acknowledge several limitations of this study. First, there are likely different contexts in which individuals might choose to use a mobile phone versus a PC, and these real-world factors could introduce systematic differences in the resulting communication of advice across devices. Additionally, although this study was conducted in person, which enhanced our ability to control experimental conditions, external factors such as pop-ups or notifications could still influence communication across devices. Importantly, the absence of a significant main effect of device suggests that these potential confounding factors did not systematically affect the responses.

Future research could explore additional factors beyond device type and psychological distance that may influence levels of professional skepticism in advice-giving within auditing. For example, examining the perspective of the advisee or analyzing peer-to-peer

advice rather than superior-subordinate advice could provide valuable insights. These avenues of research would further enrich our understanding of how communication dynamics shape professional skepticism and, ultimately, audit quality.

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Figure 2: The effect of Device & Manager Type on Overt Professional Skeptical language (LIWC: Insights + Cause)

Observed results

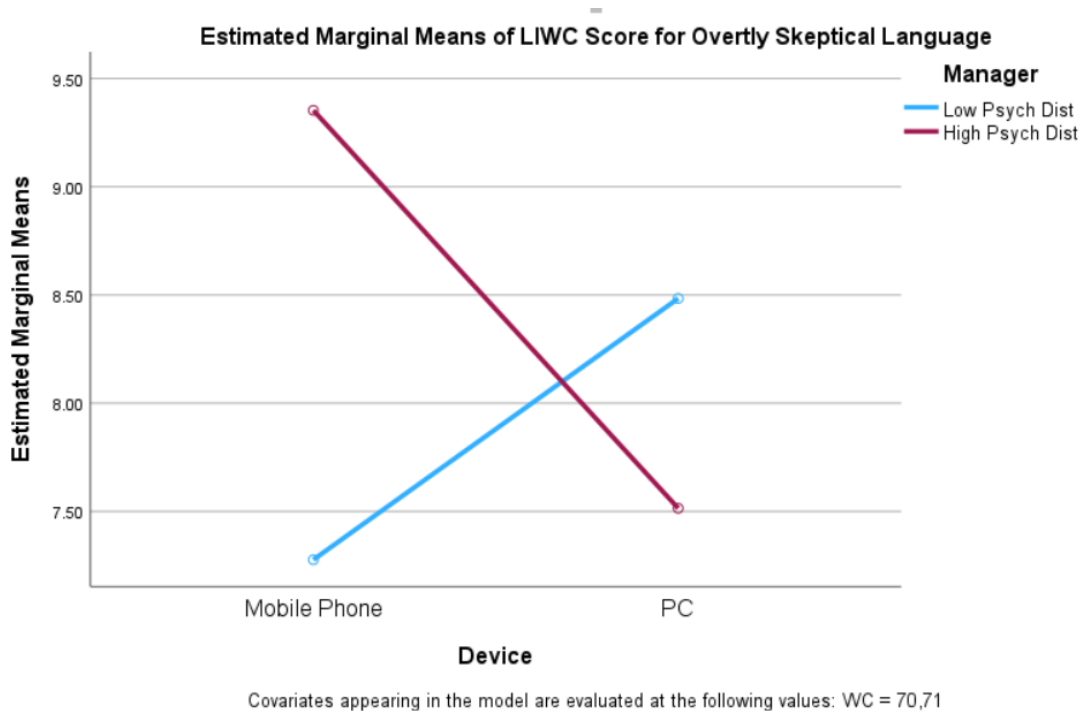


Figure 3: The effect of Device & Manager Type on Persuasive language (LIWC: Certitude - Tentative)

Observed results

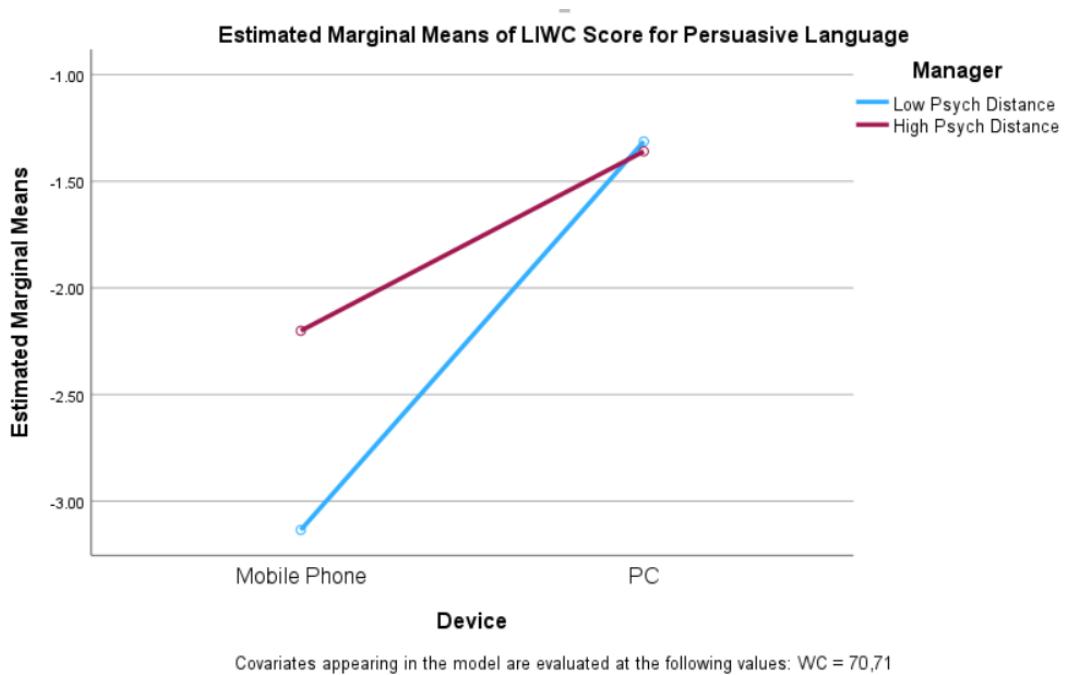


Table 1: Tests of H1 & H2

Panel A: Proportion of Professionally Skeptical-Enhancing Advice, mean (standard deviation) [n] Cell			
	Low Psychological Distance	High Psychological Distance	Overall Row
Mobile Phone	4.61 (4.43) [26] A	7.24 (5.04) [24] D	5.87 (4.87) [50]
PC	6.85 (3.15) [23] B	5.87 (3.44) [24] C	6.35 (3.30) [47]
Overall Column	5.66 (4.01) [49]	6.55 (4.32) [48]	

Panel B: Analysis of variance					
Source of variation	df	SS	MS	F	p-value
Device	1	22.548	22.548	1.393	.241
Psychological Distance	1	23.819	23.819	1.471	.228
Device X Psychological Distance	1	96.767	96.767	5.978	.016
Error	92	705.951	7.673		

Panel C: Follow-up simple effects for Professionally Skeptical-Enhancing Advice			
Source	df	F	p-value
Effect of Device given <i>Low Psychological Distance</i> (A vs. B)	1	6.290	.014
Effect of Device given <i>High Psychological Distance</i> (C vs. D)	1	.722	.398
Effect of Psychological Distance given <i>Mobile Phone</i> (A vs. D)	1	6.820	.011
Effect of Psychological Distance given <i>PC</i> (B vs. C)	1	.749	.389

Table 2: Manual Coding for Professional skepticism-enhancing Advice – *Validation of Measure used in H1 & H2*

Panel A: Proportion of Persuasive Professionally skeptical Language, mean (standard deviation) [n] Cell					
	Low Psychological Distance	High Psychological Distance	Overall Row		
Mobile Phone	3.75 (5.12) [26] A	5.20 (4.44) [24] D	4.45 (4.81) [50]		
PC	5.10 (3.54) [23] B	3.83 (3.14) [24] C	4.45 (3.37) [47]		
Overall Column	4.38 (4.46) [49]	4.52 (3.87) [48]			

Panel B: Analysis of variance					
Source of variation	df	SS	MS	F	p-value
Device	1	21.420	21.420	1.425	.236
Psychological Distance	1	3.885	3.885	.259	.612
Device X Psychological Distance	1	70.311	70.311	4.679	.033
Error	92	705.951	7.673		

Panel C: Follow-up simple effects for <i>Professionally Skeptical Advice Language</i>			
Source	df	F	p-value
Effect of Device given <i>Low Psychological Distance</i> (A vs. B)	1	5.408	.022
Effect of Device given <i>High Psychological Distance</i> (C vs. D)	1	.412	.523
Effect of Psychological Distance given <i>Mobile Phone</i> (A vs. D)	1	3.640	.060
Effect of Psychological Distance given <i>PC</i> (B vs. C)	1	.1348	.249

Table 3: Tests of Overt Professional Skepticism

Panel A: Proportion of Overtly Professionally Skeptical Language, mean (standard deviation) [n] Cell			
	Low Psychological Distance	High Psychological Distance	Overall Row
Mobile Phone	7.32 (4.62) [26] A	9.36 (4.12) [24] D	8.30 (4.46) [50]
PC	8.45 (2.89) [23] B	7.49 (2.84) [24] C	7.96 (2.88) [47]
Overall Column	7.85 (3.91) [49]	8.42 (3.63) [48]	

Panel B: Analysis of variance					
Source of variation	df	SS	MS	F	p-value
Word Count	1	.753	.753	.054	.817
Device	1	2.179	2.179	.155	.695
Psychological Distance	1	7.336	7.336	.522	.472
Device X Psychological Distance	1	55.379	55.379	3.942	.050
Error	92	1292.511	14.049		

Panel C: Follow-up simple effects for <i>Professional Skepticism Language</i>			
Source	df	F	p-value
Effect of Device given <i>Low Psychological Distance</i> (A vs. B)	1	1.151	.286
Effect of Device given <i>High Psychological Distance</i> (C vs. D)	1	2.825	.096
Effect of Psychological Distance given <i>Mobile Phone</i> (A vs. D)	1	3.739	.056
Effect of Psychological Distance given <i>PC</i> (B vs. C)	1	.786	.378

Table 4: Tests of Persuasive Language

Panel A: Proportion of Persuasive Language, mean (standard deviation) [n]			
Cell	Low Psychological Distance	High Psychological Distance	Overall Row
Mobile Phone	-2.72 (3.11) [26] A	-2.13 (2.65) [24] D	-2.43 (2.88) [50]
PC	-1.60 (2.30) [23] B	-1.62 (2.68) [24] C	-1.61 (2.47) [47]
Overall Column	-2.19 (2.79) [49]	-1.87 (2.65) [48]	

Panel B: Analysis of variance					
Source of variation	df	SS	MS	F	p-value
Device	1	38.745	38.745	5.721	.019
Psychological Distance	1	4.718	4.718	.697	.406
Device X Psychological Distance	1	5.738	5.738	.847	.360
Error	92	623.014	6.772		

Panel C: Follow-up simple effects for <i>Persuasiveness</i>			
Source	df	F	p-value
Effect of Device given <i>Low Psychological Distance</i> (A vs. B)	1	5.439	.022
Effect of Device given <i>High Psychological Distance</i> (C vs. D)	1	1.227	.271
Effect of Psychological Distance given <i>Mobile Phone</i> (A vs. D)	1	1.569	.213
Effect of Psychological Distance given <i>PC</i> (B vs. C)	1	.004	.951

Appendix 1: LIWC Steps –from Aghazadeh et al. 2022

1. Identify and Apply LIWC Categories that capture the construct of interest

- a. We leveraged the Professional Skepticism dictionaries used in Aghazadeh et al. 2021 (Insights & Cause), as well as the Tentative dictionary

2. Perform Quality control procedures

- a. We corrected text for spelling, typos, shorthand, acronyms using Word to help identify incorrect spellings, etc. We then used a native Dutch speaker to examine translations done using Google Translate for correctness.
- b. We created a list of jargon words to exclude then manually removed these from the LIWC score calculations. Words excluded are below:
 - i. “analytical” and “analysis” – These terms are included in the Insights dictionary but in this context it refers to the analytical procedure performed by the subordinate so mentioning this in itself does not show insight. We reviewed manually to exclude if the context is simply referring to the procedure that the subordinate did, as in the below 2 examples
 1. ex: “I have reviewed your analytical procedures”
 2. ex: “Thank you for this analysis”
 - ii. “Responsible” -- this term is included in the Cause dictionary but in this context it skews towards the indirect manager condition because it is largely used by participants to refer to the other manager that is directly responsible for this area. This in itself does not indicate causal analysis/professional skepticism it is simply referring to the indirect condition. We manually checked all instances for context and excluded if this is the case
 1. ex: “Unfortunately our team member responsible for this subject is currently not available”
 - iii. “COS” -- This term is included in the Cause dictionary as a misspelling of “cause” but in this context it means the FSLI “Cost of Sales” so it should be excluded as it does not indicate professional skepticism.
 1. Ex: “The development of COS and SG&A is in line with the turnover development”
- c. Prepare data in Word and Excel, specify which categories to include in the output, perform LIWC on both files
 - i. Used the LIWC color coding in Word to identify which words are included in the score, and manually removed any from the Excel LIWC score if they were part of the Jargon words identified in Step B. Read over to ensure reasonable context and interpretation.
- d. Manually correct LIWC score
 - i. Multiplied original LIWC scores by word count to get frequency and then subtracted manual corrections. Divided corrected frequency by word count to get to the new, corrected LIWC scores.
- e. **Original LIWC PS SCORE (Insights + Cause):** Reviewed samples of participant responses for construct reasonableness (i.e. higher score generally shows higher Professional Skepticism compared to lower scored responses and zero score represents no construct of interest/neutral language). Overall scores are reasonable. Most responses contain some level of PS but higher scores do appropriately show higher density of PS language
 - i. Saw one outlier score (score of 50, compared to the next highest of 20), manually checked and saw that this text was an exception as it included LIWC dictionary words and did not contain a complete sentence but had a low word count. This text showed no coherent thought/was not formatted into an email response, so we removed from the sample

1. Outlier response removed → ““**how** sufficient and appropriate audit **evidence - how** to build expectations” LIWC”
 2. Scanned remaining responses for any other text that did not indicate a coherent thought/response and did not see any remaining issues
 - ii. Reviewed the high and low scores remaining for construct reasonableness and saw that the LIWC scores seems to be picking up the construct of interest (overt professionally skeptical directive).
- f. **Persuasiveness LIWC Score (Certitude - Tentative):** Reviewed samples of participant responses for construct reasonableness (i.e. higher score generally shows higher less persuasive language compared to lower scored responses and zero score represents no construct of interest/neutral language. Overall appropriately shows less persuasiveness in low scores by indicating less clarity/certainty and vice versa in the high scores.
- i. Saw one outlier score (score of -12, compared to the next lowest of -8), manually checked and saw that this text was skewed due to low word count, and did not have overwhelming tentative language, thus we removed this from the sample
 1. Outlier response removed → ““Based on your elaboration the fluxes are **not all** in accordance with expectation. Please investigate further.”
 - ii. Reviewed the high and low scores remaining for construct reasonableness and saw that the LIWC scores seems to be appropriately picking up the construct of interest, see below examples:
- g. Cumulative LIWC PS in Advice Score (Insights + Cause + Certitude - Tentative): Reviewed some samples of participant responses for construct reasonableness (i.e. higher score generally shows more persuasive/confident language, lower score shows more tentative/hesitant language)
- h. We did not remove samples with <25 words as suggested by Aghazadeh et al. 2021 as we are looking at mobile phone responses and thus we are controlling for word count in our analysis and this would remove valuable data from our sample. We did observe some skewed score outliers above based on word count that we removed from the sample as to not skew the results
- i. We then ran our analysis using ANOVA and a covariate for Word Count

Appendix 2: Manual Coding Rubric – Professional skepticism-enhancing Advice

A) Skeptical Language: Phrases or actions indicating doubt, curiosity, or a critical approach toward the provided data. These responses reflect a challenge to the information or a recommendation to investigate further. This includes language that appears more concrete and/or certain about whether and how to follow-up.

Indicators:

1. **Explicit Mention of Investigation:**
 - Any phrase suggesting the respondent is recommending additional analysis or actions to address the issue (e.g., "investigate", "look further", "explore", "examine", "check", etc.).
2. **Expectation vs. Reality Mismatch:**
 - Phrases where the respondent notes that the data or results do not align with expectations (e.g., "This result is strange", "I would expect something different", "This doesn't match", etc.).
3. **Concrete Steps for Follow-up:**
 - Detailed instructions for follow-up actions beyond the initial analysis (e.g., "Ask the client for an explanation", "Compare this to...", "Prepare additional procedures", etc.). Each distinct follow-up action counts as a separate skeptical point. **Note:** Contracts and calculations/analysis are counted as two separate steps. "Additional procedures" counts as a step.
4. **Client Inquiry Recommendation:**
 - Recommending direct communication with the client to clarify discrepancies or obtain explanations (e.g., "We should discuss this with the client", "Inquire with management", etc.).
5. **Consideration of Impact on Audit Plan:**
 - Phrases where the participant is considering the impact of findings on the audit plan (e.g., "What would be the potential impact?", "How does this affect our audit approach?").

B) Hesitant Language: Phrases that mitigate or offset skepticism by rationalizing the issue, prioritizing client relations or budgets, or suggesting that the fluctuation might be acceptable under certain conditions. These responses decrease the overall skepticism score.

Indicators:

1. **Rationalizing the Fluctuation:**
 - Phrases that attempt to explain away discrepancies or justify unusual results (e.g., "There could be good reasons for this", "It seems reasonable", "This might be explained by...", etc.).
2. **Focus on Client Relationship or Budget:**
 - References to maintaining good client relationships or keeping within budget as reasons for not pursuing further investigation (e.g., "We need to be mindful of client relationships", "Considering the budget...", etc.).
3. **Indicating Acceptance of the Fluctuation:**
 - Language that suggests the issue might not warrant further concern (e.g., "It seems fine", "It doesn't seem significant", "This might not be a big issue", etc.).
4. **Doubting the Necessity of Skeptical Actions:**
 - Phrases that downplay the need for further investigation (e.g., "This might not be necessary", "Do we really need to investigate further?", "Maybe this doesn't require more follow-up", etc.).
5. **Conditional Language that Softens Skepticism:**
 - Use of conditional phrases like "depending on the outcome" or "if necessary" that introduce hesitation and reduce commitment to skeptical actions.

Scoring Methodology

- **Skeptical Points:** Assign 1 point for each instance of skeptical language based on the indicators above (only 1 point if indicators overlap, however client inquiry is always +1 due to high skeptical nature).
- **Hesitant Points:** Deduct 1 point for each instance of hesitant language based on the indicators above.
- **Combine these two scores for a total score of Professional Skepticism-Enhancing Advice**

Appendix 3: Examples of manual coding

The following examples illustrate how responses were manually coded according to the Coding Rubric described in Appendix 2, with bold text denoting +1 and italic text denoting -1.

Example 1: Sample Participant Response: Low Score

“ I understand you are reaching out to me because your manager is unavailable, I am happy to assist. My question is however, *what is the reason for you to decide to perform additional analysis on revenue[-1]*? Due to me not being involved for this component, *I would need to understand what was discussed with management[-1]* and *what we identified that triggered us to perform additional investigation if the financial data do not indicate any additional risks[-1]?..*”

Total Score -1-1-1 = -3

Example 2: Sample Participant Response: Moderate Score

“*in general this shouldn't have to be a problem[-1]. The client might have long term contracts, where the people can focus on gaining new contracts. Furthermore, we don't know in this stage whether the 2022 production space was all utilized[-1].* **I would suggest to look at the customer spread, so diving a bit more in the details.[+1]** **Ask the client where the increase comes from, ask your questions to them as well[+1], as I agree it seems odd to have less production space and less people but an increase in revenue[+1].**”

Total Score: -1-1+1+1+1 = 1

Example 3: Sample Participant Response : High Score

“**Good that you combined your analysis with some non financial measures[+1]. Comparing them with the financial measures invites us to perform additional procedures as at first sight it does not seem logical[+1]. We need to acquire more information to understand this[+1]. We should inquire [+1] with the client[+1]** and *depending on that outcome decide on possible[-1]* **further procedures[+1]. Please don't hesitate[+1]** to involve me with those inquiries..”

Total Score: +1+1+1+1+1+1-1+1 = 6