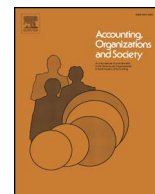




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## A natural field experiment examining the joint role of audit partner leadership and subordinates' knowledge in fraud brainstorming

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## ABSTRACT

Research shows that audit partner leadership is critical to achieving fraud brainstorming objectives. We examine how partner leadership and subordinate knowledge *jointly* influence brainstorming processes and outcomes. We conduct a natural field experiment that manipulates partner leadership during actual brainstorming sessions to leverage naturally-occurring differences in the knowledge levels of managers versus seniors. Our design allows us to examine how knowledge differences within the organization influence judgments on actual engagements, thereby facilitating uniquely realistic inferences about partner leadership in interactive brainstorming. We predict and find that quality-differentiated leadership improves the mental representations of fraud risk for seniors, but not managers. Consistent with theory around shared mental models, these changes are, in turn, associated with the engagement team's planned fraud risk responses. Further analyses reveal that our leadership prompts are relatively more novel for seniors than managers, supporting the notion that seniors have more room for improvement in their mental representations than managers.

### 1. Introduction

Society continues to express concerns about auditors' responsiveness to fraud risk and corresponding fraud detection capabilities, a foundational element of audit quality (see e.g., CAQ, 2010; ACFE 2014, 2016; PCAOB, 2007, 2013, 2015, SEC 2015, 2016). Professional standards require that auditors engage in brainstorming as part of every audit to inform fraud judgments throughout the audit (PCAOB, 2010; AICPA, 2015a, b). While research reveals considerable variation in brainstorming in the field (e.g., Brazel, Carpenter, & Jenkins, 2010; Dennis & Johnstone, 2016), several studies find that experimental interventions can improve brainstorming outcomes (e.g., Carpenter & Reimers, 2013; Chen, Khalifa, & Trotman, 2015a; Hoffman & Zimbelman, 2009; Lynch, Murthy, & Engle, 2009; Trotman, Simnett, & Khalifa, 2009). Research also shows that audit partners play critical roles in leading brainstorming sessions and demonstrates the importance of this leadership in achieving brainstorming objectives (e.g., Brazel et al., 2010; Gissel & Johnstone, 2017).

However, little is known about how partner leadership facilitates the development of subordinate auditors who contribute to achieving these objectives (both during brainstorming and throughout the audit). Subordinate auditors at different ranks encounter partner leadership (and any related interventions) with correspondingly different levels of

knowledge about clients, industries, and brainstorming objectives. This knowledge shapes the *ex-ante* mental representations of fraud risk with which they begin brainstorming sessions in the field (e.g., Christ, 1993; Hammersley, 2006; Vera-Munoz, Kinney, & Bonner, 2001), and is an important determinant of the potential for further mental representation development during brainstorming (e.g., Alba & Hasher, 1983; Lynch et al., 2009). It is therefore critical to understand how knowledge levels influence the way different audit team members respond to partner leadership. We address this issue by studying live brainstorming sessions for actual audit engagements to examine the following research question: How do audit partner leadership and subordinate knowledge *jointly* influence the processes and outcomes of interactive brainstorming?

We conducted this study in collaboration with a sponsoring Big 4 firm that expressed interest in research around interventions that might improve fraud brainstorming. Because partners play a critical role in leading team discussions (e.g., Nelson, Proell, & Randel, 2016), they are in an ideal position to facilitate brainstorming interventions in the field. In our conversations with senior leaders at this firm, they expressed interest in whether and how a partner-led intervention might yield productive results during brainstorming and throughout the audit. They also shared our interest in how team members at different levels (e.g., managers vs. Seniors) might internalize and respond to facilitation

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prompts from partners differently. Based on our joint interests, we designed a theory-grounded natural field experiment to examine quality-differentiated partner leadership, subordinate knowledge, and variation in fraud judgments (including brainstorming processes and outcomes) in a setting with maximum realism.

We define quality-differentiated audit partner leadership in brainstorming as that which is particularly focused on delivering facilitation prompts (hereafter, “prompts”) that promote professional skepticism and appropriately calibrated effectiveness/efficiency tradeoffs, and that emphasize training/professional development (see, e.g., Lynch et al., 2009; Carpenter & Reimers, 2013). For brevity, we hereafter refer to quality-differentiated audit partner leadership as “prompted leadership”, which reflects the fact that we instructed partners in the treatment condition to deliver a set of prompts during brainstorming. Compared with “normal” leadership, we predict that prompted leadership will encourage more-productive cognitive engagement, and thereby initiate more helpful changes in subordinates’ mental representations of fraud risk.

We develop a theoretical model that integrates literature around partner leadership, auditor knowledge, mental representations, and team-based shared mental models. We use rank as our measure of subordinates’ knowledge, and we designate managers (seniors) as more-knowledgeable (less-knowledgeable) auditors (see, e.g., Libby & Luft, 1993). Research suggests that seniors have more room for improvement in their mental representations of fraud risk than managers (e.g., Carpenter, 2007; Chen, Trotman, & Zhou, 2015b; Knapp & Knapp, 2001; Nelson, 2009). We accordingly expect seniors to experience prompted leadership through a different lens than managers – and that prompted leadership will be more “novel” for seniors than managers.<sup>1</sup> We therefore predict that prompted leadership will influence changes in the mental representations of seniors more than those of managers. We further predict these improvements will, in turn, improve brainstorming outcomes (e.g., Trotman, Bauer, & Humphries, 2015).

We manipulate partner leadership using a prompt-based intervention in a natural field experiment (see Floyd & List, 2016).<sup>2</sup> Partners in the treatment condition receive the intervention (i.e., prompted leadership) and partners in the control condition do not (i.e., “normal” leadership). We designed the experiment such that both the manager and senior on each engagement *independently* answered the *same* questions about the *same* engagement. We use these independent responses to examine whether subordinates’ knowledge moderates the effect of partner leadership on fraud brainstorming processes and outcomes (e.g., Trotman et al., 2015). This design enables us to examine knowledge differences within a team, while holding constant the subject of the team’s judgments. Additionally, our design leverages naturally-occurring differences in managers’ and seniors’ knowledge about an actual client and the “normal” leadership behavior of a specific partner. Notably, the managers and seniors in our experiment have developed rich client-specific knowledge through months (and in most cases, years) of real experience on the actual engagement, which facilitates a uniquely meaningful and realistic measure of our knowledge construct and strengthens the validity of our inferences.

We conducted the study in conjunction with the brainstorming sessions of 77 audit engagements conducted between March 2013 and January 2014 at three audit firms (two Big 4 and one international

firm). In a  $2 \times 2$  experimental design, we manipulate audit partner leadership (between engagements) and measure subordinate knowledge (within engagements). Our audit firm contacts randomly assigned partners to either the treatment ( $n = 37$ ) or control condition ( $n = 40$ ). Each partner received a memo prior to the session indicating that the respective engagement would be involved in a research study. Memos in the treatment condition also included a partner-led intervention with instructions to deliver certain prompts during the session. The intervention instructs partners to deliver both *general prompts* (e.g., emphasize fraud brainstorming as a training opportunity) and *targeted prompts* (e.g., discuss any relevant personal experience on engagements involving fraud) and is intended to induce quality-differentiated leadership. Memos in the control condition did not contain the intervention.

After brainstorming, our audit firm contacts notified one audit manager and one audit senior on each engagement about the study and then provided each with a survey to complete individually; these participants did not know that they were participating in a research study when they interacted in the brainstorming team. This survey requested retrospective recalls of information about the client, the audit team, and the brainstorming session itself (see Ericsson & Simon, 1980). Manipulation checks show that the intervention induced prompted leadership in the treatment condition with respect to targeted prompts. However, subordinates in both conditions report similarly high-quality leadership with respect to general prompts.

Consistent with our predictions, audit subordinates’ knowledge moderates the effect of prompted leadership on their individual mental representations of fraud risk. Specifically, prompted leadership initiates significantly more changes in seniors’ mental representations of fraud risk than “normal” (i.e., control condition) leadership, and we find no incremental effect of prompted leadership on changes in managers’ mental representations. We also find that the indirect effect of prompted leadership on brainstorming outcomes (i.e., planned fraud-related procedures) is greater for seniors than for managers. The strongest outcome effects relate to total procedures, with somewhat weaker effects for new procedures and unpredictable procedures.

We conducted a follow-on survey to examine how managers and seniors perceive partner leadership in “normal” (i.e., control condition) sessions in practice. We asked a new sample of 32 auditors (15 managers and 17 seniors) to rate how often they observe partners delivering each of our potential prompts in “normal” (i.e., control condition) sessions in practice. Consistent with seniors viewing partner leadership through a different lens than managers, seniors (managers) perceive that partners deliver *targeted* prompts significantly less (more) frequently. This suggests that these prompts are relatively more novel for seniors than managers, which complements our finding that seniors’ mental representations of fraud risk change more than those of managers in response to prompted leadership. Collectively, our findings therefore imply that the effectiveness of a prompt-based brainstorming intervention derives, in part, from a mutual inter-dependence between the novelty of the intervention and the knowledge level of the related target.

Our study makes several incremental contributions. Trotman et al. (2015, page 65) note “there is considerable potential for improvement in brainstorming by adding alternative facilitation methods to the unstructured face-to-face interaction used in practice.” First and foremost, we develop theory that makes a meaningful step forward in this regard. Namely, while partners can reliably improve brainstorming outcomes in the field via prompt-based leadership interventions, these improvements appear more attributable to changes in the mental representations of less-knowledgeable auditors than those of more-knowledgeable auditors. This extends theoretical models that emphasize the importance of auditor knowledge in identifying, understanding, and responding to fraud risk (e.g., Hammersley, 2011; Nelson, 2009) by articulating a moderating effect of subordinates’ knowledge on the influence of partner leadership in these processes.

<sup>1</sup> We use the term “novel” to refer to the different or unexpected nature of the thoughts and discussions that the facilitation prompts elicit, as compared to what subordinates are accustomed to experiencing during brainstorming.

<sup>2</sup> The intervention includes prompts that emphasize training/professional development, encourage appropriately calibrated effectiveness/efficiency tradeoffs, and promote professional skepticism. For example, the following are prompts that relate to training/professional development: “Actively mentor both the audit manager and in-charge auditor in terms of how to most effectively identify and appropriately respond to fraud risks” and “Be cognizant of the fact that your leadership during the session sets the tone for the engagement team members as they work to appropriately assess and respond to fraud risk during planning and conduct of the engagement”.

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