The medium matters: the impact of electronic communication media and evidence strength on belief revision during auditor-client inquiry
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Chapter 1  Introduction

In this chapter, we introduce this dissertation’s topic – the impact of media attributes on auditors’ belief revision following client inquiry – and motivate its importance by describing the emergence of electronic communication media in organizations and presenting their role for auditor-client inquiry. We further offer the central problem definition, research questions and research design that the upcoming chapters address. Finally, we present an overview of this dissertation’s content and structure.

1.1 Introduction

Over the past 20 years, the integration of computers and communication technologies has revolutionized organizational communication. For example, electronic mail (e-mail) has quickly become one of the most frequently used communication media in contemporary organizations. Two major forces have been pushing such developments. First, growing globalization in most sectors of society has forced many companies, audit firms and other institutions (such as governmental bodies), to interact across space boundaries. Thus, trade, investment and collaboration between and within organizations increasingly takes place across international borders, which ultimately complicates face-to-face meetings. Second, technological developments, such as the growing use of computer networks (e.g., local area networks, wide area networks, and, most recently, the Internet) have enabled an increased use of computer-mediated communication (CMC) for intra- and inter-organizational communication.

As a result of such globalization and technology developments, the use of electronic communication media has become an integral component of organizational communication (e.g., Strauss and McGrath 1994; Baltes, Dickson, Sherman, Bauer and LaGanke 2002). Such media provide new ways to support dyadic (one-to-one) and group work, even when time and space separate communicating parties. For instance, in 2001, more than 10 million
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e-mails were exchanged daily, and this amount was expected to increase to 25 billion by 2005 (Levitt and Mahowald 2001), suggesting that knowledge sharing via e-mail is a rapidly growing phenomenon.

This dissertation focuses on the communication process between auditors and their clients, the so-called auditor-client inquiry, an integral component of audit procedures. Auditors increasingly use computer-mediated communication methods to gather audit evidence from client management (the ‘auditee’), rather than relying on face-to-face meetings only. E-mail and video-conferencing are examples of communication media that co-communicators can use for dyadic (in this case, auditor-client) inquiry, when temporal or space constraints make it difficult and expensive to hold face-to-face meetings.

As described thus far, current electronic communication technologies make collaboration and information exchange between dispersed co-communicators more convenient and less expensive than traveling to meet face-to-face. However, questions arise as to the effects of such technologies on various communication outcome variables, such as human performance, as well as judgment and decision quality. This dissertation concerns auditors’ use of electronic communication media for client inquiry purposes. In a laboratory experiment, we study some of the effects that various media attributes can have on certain communication outcomes. Specifically, this dissertation examines whether and how certain media attributes affect auditors’ belief revision (i.e., the extent to which an auditor revises his/her belief in light of new evidence) when auditors collect client-provided audit evidence by the means of electronic communication media.

In this chapter, we will first describe the term ‘auditor-client inquiry’, to motivate the study of auditors’ use of communication media for such purposes (Section 1.2). Then, in Section 1.3, we offer the problem definition and the research questions. Next, in Section 1.4, we motivate and describe the research design chosen for this dissertation. Finally, Section 1.5 provides an overview of this dissertation’s structure and content, briefly summarizing each chapter.

1.2 Auditor-client inquiry

According to Agency Theory (e.g., Jensen and Meckling 1976), the relationship between an auditor and his/her client is largely based on various conflicts of interest among client
management (the ‘agent’) on one hand and the owner (the ‘principal’) on the other. One assumption in Agency Theory is that management will attempt to take advantage of the asymmetric information it possesses toward the principal. The auditor represents the principal and is seen as fulfilling the monitoring function necessary to ensure that management does not take (too much) advantage of information asymmetry.

The objective of every audit is to provide an opinion about the fairness of a client’s financial statements, in order to meet the problems created by such information asymmetry. To develop this opinion, an auditor performs a series of audit procedures designed to provide reasonable assurance that the financial statements contain no material misstatements. An auditor typically follows four distinct components of such procedures: First, the auditor develops a mental model of client business activities where he/she detects unusual fluctuations in a company’s financial statements (mental representation). Second, the auditor generates potential causes for observed inconsistencies (hypothesis generation). Third, the auditor gathers diagnostic information (information search) and fourth, he/she analyzes the findings to identify the most likely hypothesis and arrive at a diagnosis (hypothesis evaluation) (Koonce, Walker and Wright 1993).

This dissertation is concerned with the information search component of audit procedures; more specifically, it focuses on the client inquiry process. Once the auditor generates a plausible set of hypotheses, he/she searches for evidence at the audited organization until he/she establishes a high level of assurance about the cause-effect relationship at hand. Typically, the auditor samples audit evidence using a range of information gathering procedures in the audited organization, such as inspection, observation, inquiry, confirmation, computation, third party representations and analytical procedures. The auditor often obtains information from external, objective sources as well, such as other audit-team members, workpapers, and industry data sources (Koonce et al. 1993).

However, in some cases, the auditor’s ability to obtain reliable information from objective sources may be limited (Hirst and Koonce 1996). Much of the information found in financial statements and related material is not based directly on transactions and cannot always be supported by source documents. In such cases, client inquiry is often a very effective way to acquire evidence to support the gathered information (CICA 2000).
Indeed, the research report “Audit enquiry: Seeking more reliable evidence from audit enquiry” (CICA 2000) concludes that client inquiry is increasingly playing a prominent role in the evidence collection process. This is due to several factors: the growing importance of ‘softer information’ in financial and other reports based on estimates, expectations and assumptions; the increasing relevance of performance measures that may require substantial subjective judgment; and, an increasing need to gain an understanding of the attitudes, culture and ethics that influence control in entities, as well as how an entity’s information systems capture, process and report information (CICA 2000).

Thus, although auditors consider management inquiry as less reliable than evidence received from an independent third party (Knechel 2001), it is an integral part of the audit process nevertheless, because management’s knowledge of the entity makes it a valuable source of information (Haynes 1999). During client inquiry, the auditor conducts formal or informal interviews with the client’s employees and management, and then assesses and judges the collected information accordingly (Hirst and Koonce 1996).

According to Agency Theory, management may benefit from maintaining an information asymmetry toward the auditor and thus disclose biased information in the form of subjective preferences. Understanding how persuasive client preferences influence audit judgment is important because the auditor may ultimately accept an inappropriate explanation (Jenkins and Haynes 2003). This potential threat to audit judgment makes the client inquiry aspect of audit procedures a particularly interesting one to examine. Due to the subjectivity of accounts, explanations and estimates collected by means of client inquiry, the auditor has to be very careful in appropriately evaluating client-provided evidence. The quality, effectiveness and efficiency of an audit may be considerably comprised if the auditor fails to properly assess the information (Anderson, Kadous and Koonce 2001; Comunale, Sexton and Sincich 2001).

Due to management’s self-serving interests, it is realistic to assume that the client possesses persuasive intentions when conveying subjective evidence to the auditor. In other words, a client may have incentives and opportunities to engage in strategic behaviors directed toward persuading the auditor of the validity of his/her arguments. Such strategic behaviors may have adverse consequences on audit effectiveness. This impact on effectiveness is likely to be a function of how the auditor responds to such strategic behaviors by the client. The
client's persuasive intentions are an important assumption throughout this dissertation and will be further elaborated in the upcoming chapter. We are thus interested in audit judgments as a result of client inquiry, given persuasive intentions on the client's side.

As motivated in the previous section, we argue that client inquiry increasingly takes place in computer-mediated environments. In other words, given time and space constraints as well as a general strive for efficiency, auditors may choose to gather evidence via electronic communication media, such as e-mail or videoconferencing, rather than in face-to-face settings. As will be theoretically demonstrated in Chapter 2, there is reason to believe that the attributes possessed by such communication media may impact the persuasiveness of client-provided evidence and thus affect audit judgments -- particularly when the client has persuasive intentions, as assumed here. Thus, we will examine the effects of such media attributes on auditors' belief revision, following client inquiry.

1.3 Research objective and problem definition

This dissertation examines the effects of electronic communication media used for client inquiry on judgment-related communication outcomes. Namely, questions arise with regard to potential misunderstandings, biases and distortions that various electronic media representations may introduce into the dyadic auditor-client inquiry process.

To examine the impact of communication media on audit decision and judgment processes, we distinguish among a number of attributes that such media may possess. For example, some media may offer a low level of cue multiplicity (meaning that they convey very few non-content related informational cues; e.g. e-mail), while others offer high cue multiplicity (they convey multi-faceted information via peripheral cues, such as body language, facial expressions and voice intonations; e.g. video). Media may also vary in their ability to archive received information for later review (i.e., reprocessability), where some media allow for information storage (e.g., most e-mail systems) and others do not (e.g., voice chats). By examining these and other media attributes, we address how and why media can affect judgments and decisions arising from auditor-client inquiry.

In the starting phase of this dissertation, we first approached this issue with the result in a broad theoretical framework called the media-task fit (METAFIT) model. Considering a dyadic auditor-client inquiry setting, the METAFIT model examines how media attributes
may interact with task-related, environmental and experiential factors, and ultimately affect communication effectiveness. We defined communication effectiveness as high judgment and decision quality, as perceived by the auditor who analyzes client-provided evidence. During the development of the METAFIT model, we reviewed relevant literature concerning the relationships between a number of media attributes and communication effectiveness indicators, given various task-related, environmental and experiential factors. The resulting METAFIT model offers a number of propositions with regard to the interactive factor effects on communication effectiveness during auditor-client inquiry. For instance, the model predicts that for highly equivocal tasks and in cases where the auditor is exposed to high levels of time pressure, communication with the client should take place via ‘rich’ and highly ‘interactive’ media. While the focus of this dissertation lies on the subsequent model development and testing, we offer theory underlying the METAFIT model and its propositions in the published paper (Nöteberg, Benford and Hunton 2003) and in Appendix 1 of this dissertation.

While the METAFIT model was a useful starting point from a theoretical perspective, it proves difficult to test empirically, for two main reasons. First, the METAFIT model applies media-related theories to a variety of auditor-client inquiry scenarios, thus not specifying the context sufficiently for empirical testing. Second, we developed the model with the goal of relating media attributes to the rather broad concept of communication effectiveness. On the other hand, the model, which is developed and tested in this dissertation is more restricted in scope and considers the more narrowly defined outcome variable of belief revision, as explained next.

Related to the METAFIT model, the more focused and refined research model presented in this dissertation applies only to scenarios where the client has persuasive intentions. In other words, we assume that the client has certain preferences, differing significantly from the ones held and stated by the auditor. Consequently, in the assumed scenario, the client aims to persuade the auditor of his/her opinion or state of affairs, an assumption not unrealistic in auditor-client inquiry settings, due to the mentioned information asymmetry and management’s potential self-serving interests. We will henceforth refer to this notion as the client’s ‘persuasive intentions’. In this dissertation, we posit that the media by which the client conveys such persuasive information affects the auditor’s judgment and decision quality, primarily because communication media differ in their capacity to convey multi-
faceted information. Namely, some media may amplify the persuasiveness of client-provided messages more than others, depending on various media attributes. Audit judgment quality largely depends on the degree to which the auditor can discern truth from deception in the client’s messages. However, the *quality* of an auditor’s judgment or decision is difficult to assess, since criteria to measure the judgment against are oftentimes lacking in auditing (Solomon and Shields 1995). For this reason, this dissertation examines media effects on auditors’ *belief revision*, a related but more tightly defined outcome variable. Belief revision reflects the extent to which an individual (in this case, an auditor) updates his/her beliefs in light of new (client-provided) evidence. Ultimately, depending on belief revision effects, the auditor’s judgment and decision qualities are likely affected. For example, posit that an auditor over-reacts to evidence provided by the client, due to the media used for information conveyance. Such an overreaction may have detrimental effects on the quality of the final audit judgment that is formed.

Hence, the aim of the research model presented in this dissertation is to make a selection of media attributes presented in the METAFIT model and examine their relationships with auditor belief revision. Consequently, we define our research objective in the following way.

**Research Objective:** “To investigate the impact of electronic communication media attributes on belief revision in a dyadic auditor-client inquiry setting, in which the client has persuasive intentions.”

For the research model employed in this dissertation, we choose two attributes of particular interest, reprocessability (i.e., the medium’s ability to archive messages for re-examination) and cue multiplicity (i.e., the extent to which the medium makes available various non-content related (peripheral) cues, such as body language, facial expressions, voice intonations). Further, when an auditor processes client-provided evidence, one of the most important issues he/she likely considers is the actual strength of the evidence. As will be theoretically motivated by the Belief Adjustment Model in Chapter 2, the relative strength of evidence determines the effect of the chosen media attributes on an auditors’ belief revision. Specifically, we will explain that the magnitude of media attribute effects depend on (i.e., interact with) the strength of the evidence provided by the client to the auditor. In line with the research objective, we formulate the more narrowly defined research question, which will guide the structure and content of this dissertation:
Research Question: "What is the impact of evidence strength, reprocessability and cue multiplicity on auditors' belief revision in a dyadic auditor-client inquiry setting, in which the client has persuasive intentions?"

1.4 Research design

The choice of a research design depends on the nature of the research problem and the status of theory development in the research field. We are interested in causal relationships between media attributes, evidence strength and belief revision in a dyadic auditor-client inquiry setting. Various theories are available and appropriate both to describe the field of interest and to use for hypothesis development. As a result, we employ a deductive, hypothesis-driven research strategy. Following the positivist research tradition, this dissertation will present a review of theories that form the basis for our hypotheses and propositions. The research model, presented in Chapter 2 of this dissertation, finds its theoretical underpinning in the literature of belief adjustment and persuasion, and results in a set of hypotheses that we consequently test empirically in a laboratory experiment.

1.5 Dissertation outline

The structure of this dissertation is as follows (see also Table 1.1 for an overview).

In Chapter 2, we develop a research model studying the impact of evidence strength, reprocessability and cue multiplicity on auditors' belief revision in a dyadic auditor-client inquiry setting. Behavioral audit research commonly studies the impact of various factors on the extent to which an auditor revises his/her belief in light of new evidence. This approach, recognized as the Belief Adjustment Model (Ashton and Ashton 1988; Hogarth and Einhorn 1992), forms the basis of the research model that we develop in Chapter 2. The basic premise in this dissertation is that the way in which one presents evidence to a decision maker is to some degree determined and constrained by the type of medium being used for communication. The Belief Adjustment Model, supported by the Elaboration Likelihood Model (Petty and Cacioppo 1981), helps to explain the effects of a medium's reprocessability and cue multiplicity in interaction with evidence strength on the auditor's belief revision. The hypotheses that we offer in Chapter 2 concern the effects of the chosen media attributes on auditor belief revision in light of (either strong or weak) client-provided evidential cues.
Chapter 3 describes the methodology used to collect and analyze empirical data, testing hypotheses stated in Chapter 2. The research design employed in the empirical part of this dissertation was a computerized laboratory experiment and participants were graduate, practicing accounting students. In Chapter 3, we describe in detail the experimental task and procedures employed during data collection. Further, we explain how we manipulated the experimental factors of interest and developed the experimental treatments.

Chapter 4 reports the results of statistical analyses of empirical observations with regard to the impact of reprocessability, cue multiplicity and evidence strength on belief revision. We also perform and report post-hoc analyses. We describe the study results and link them back to the theoretical framework offered in Chapter 2.

Finally, we summarize and discuss the findings in Chapter 5. We suggest implications for theory and practice. The presentation of research limitations and possible future research in the area concludes the chapter.

**Table 1.1: Dissertation Outline**

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<th>Chapter</th>
<th>Title</th>
<th>Purpose</th>
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<td>Introduction</td>
<td>• Introduce, motivate and frame the research project.</td>
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<td>2</td>
<td>Theory and hypotheses</td>
<td>• Review media attributes literature.</td>
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<td>• Review the Belief Adjustment Model.</td>
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<td>• Posit research model and hypotheses with regard to evidence strength, reprocessability and cue multiplicity effects on belief revision.</td>
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<td>3</td>
<td>Research methodology</td>
<td>• Present the experimental design, task and procedures.</td>
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<td>• Describe the experimental treatments and measures.</td>
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<td>4</td>
<td>Analysis and results</td>
<td>• Analyze the data gathered during experiment.</td>
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<td>• Address the extent to which hypotheses are supported.</td>
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<td>• Perform post-hoc analyses if necessary.</td>
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<td>• Link back results to research model and offer theoretical explanations for empirical findings.</td>
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<td>5</td>
<td>Conclusions</td>
<td>• Summarize and discuss final conclusions.</td>
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<td>• Discuss study limitations.</td>
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<td>• Present possible future research.</td>
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1.6 Expected contribution

This dissertation provides incremental theoretical contribution to both information systems and auditing literatures, as it incorporates media-related concepts from information systems research combined with auditing related theory in a judgment and decision-making context. By studying the impact of communication media attributes on belief revision, we extend existing theory (i.e., the Belief Adjustment Model) to a model that can be applied to mediated auditor-client inquiry tasks.

In terms of practical contribution, the findings resulting from this study will provide some recommendations for practicing auditors regarding their use of electronic communication media for client inquiry. We suggest that under certain circumstances where dyadic auditor-client communications take place via electronic media, clients with persuasive intentions may intentionally distort requested audit evidence. Consequently, auditors’ may unknowingly alter their belief revision processes, which potentially may result in lower levels of judgment and audit quality.