INFORMATIONAL INFLUENCE IN ORGANIZATIONS:
AN INTEGRATED APPROACH TO KNOWLEDGE ADOPTION

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ABSTRACT

This research investigates how knowledge workers are influenced to adopt the advice that they receive in mediated contexts. The research integrates the Technology Acceptance Model (Davis, 1989) with dual process models of informational influence (e.g., Petty and Cacioppo, 1986; Chaiken and Eagly, 1976) to build a theoretical model of information adoption. This model highlights the assessment of information usefulness as a mediator of the information adoption process. Importantly, the model draws on the dual process models to make predictions about the antecedents of informational usefulness under different processing conditions.

The model is investigated first qualitatively using interviews of a sample of 40 consultants, and then quantitatively on another sample of 63 consultants from the same international consulting organization. Data reflect participants’ perceptions of actual e-mails they received from colleagues consisting of advice or recommendations. Results support the model, suggesting that the process models used to understand information adoption can be generalized to the field of knowledge management, and that usefulness serves a mediating role between influence processes and information adoption. Organizational knowledge work is becoming increasingly global. This research offers a model for understanding knowledge transfer using computer-mediated communication.
INTRODUCTION

A consultant is designing a new distribution process for a client in an unfamiliar industry. She asks several people in her formal and informal networks for some advice concerning a particularly complex part of the process. She also posts the question on the organization-wide electronic bulletin board system. In response to these inquiries she receives half a dozen different e-mails, from people with varying degrees of expertise in the area and industry, some of whom she knows better than others. How does she sort through the advice in these e-mails to decide which action to take?

This scenario exemplifies one problem of knowledge transfer in organizations, specifically, knowledge utilization or adoption. While engaged in knowledge work, workers must comprehend the knowledge they receive, discern the complexities and subtleties of it, and incorporate it into their schemas and mental models. Meaningful learning and insightful problem solving require that learners reorganize and integrate new information into their cognitive structures (Ausubel, 1963). Only then can they determine a course of action that seems to best serve their needs and the needs of the organization.

This research empirically investigates how people in organizations integrate received knowledge into their ongoing work. A field study was conducted which examines how individuals are influenced to follow certain courses of action, based on actual advice, recommendations and suggestions they received via e-mail. In this study we develop and test hypotheses based on theories of adoption (Technology Acceptance Model; Davis, 1989) and informational influence (e.g. Petty and Cacioppo, 1986; Eagly and Chaiken, 1993), integrating the theories to reflect field-based knowledge transfer work. We employ computer-mediated communication (CMC) as a context to examine how individuals incorporate received advice into their actions in order to understand the broader phenomenon of organizational knowledge transfer. We believe the resultant model of knowledge adoption has the potential to inform more general processes of organizational knowledge management.
THEORETICAL DEVELOPMENT

Knowledge Transfer in Organizations

In organizations, knowledge is transferred between and among individuals, groups, communities of practice, and other organizations. Knowledge is embedded in the flows of communication and information that move across these multiple arenas. Theorists conceive of knowledge flows as consisting of the following five elements (Gupta and Govindarajan, 1996): 1) perceptions as to the value of the source knowledge, 2) the willingness of the source to share that knowledge, 3) the availability of rich information channels, 4) the willingness of the recipient to acquire the knowledge, and 5) the absorptive capacity of the recipient(s) (Cohen and Levinthal, 1990). We can conceptualize these elements as reflecting characteristics or perceptions of the source (# 1 and 2), the channel (# 3), and the recipient (# 4 and 5). To understand knowledge transfer, we need to understand each of these elements and the way they work together to influence how people learn and behave in organizations.

For knowledge transfer to occur, learning must transpire in the mind of the recipient. This reflects the widely shared view that knowledge involves cognitive structures and processes, and cannot be embodied as texts or other explicit representations (Nonaka, 1994; Brown and Duguid, 1991; Davenport and Prusak, 1998). Knowledge recipients' perceptions of transferred information are situated in the particular place and time of the learner. For example, received content may be taken to heart by one recipient and ignored by another, depending on these recipients’ experience of the learning content, structure, and process. The same content can engender very different responses in different recipients (Eagly and Chaiken, 1976). This makes the knowledge transfer process very complex to research empirically, particularly in the field where there is little about recipient processes that researchers can control or even see. And in organizations, knowledge is
transferred among multiple entities, at multiple levels of analysis. Knowledge can be tacit or explicit, procedural or declarative, social, pragmatic, and equivocal. Clearly, any fruitful investigation of knowledge transfer must limit the scope of this broad phenomenon.

In most ways learning is more effective when it occurs in a face-to-face context rather than a mediated one (Lave and Wenger, 1991; Brown and Duguid, 1991; Zack and McKenney, 1995). However, global knowledge work is increasingly reliant on online document transfer, underscoring the need to investigate the knowledge transfer process at the interface between explicit information (i.e. texts) and personal knowledge. Nonaka (1994) describes this process as the internalization phase of knowledge transfer, in which explicit information is transformed into internalized knowledge and meaning. This study investigates this internalization phase of organizational knowledge transfer as it transpires from received text, calling this process knowledge adoption. We focus on one particular manifestation of knowledge internalization – information adoption in response to advice-bearing e-mail.

E-mail is a form of asynchronous computer-mediated communication (CMC) that has become commoditized in knowledge-based organizations. More than 10 billion e-mails are now exchanged daily, and this quantity is expected to increase to 35 billion by 2005 (Levitt and Mahowald, 2001). In a study of managerial e-mail use, 27% of managers reported using e-mail for equivocal communication such as exchanging subjective views, and 14% would use e-mail to influence or sell an idea (Markus, 1994). This evidence suggests that knowledge sharing via e-mail is a rapidly emerging phenomenon.

Organizational use of e-mail has been widely studied for its effects on social context cues (Sproull and Kiesler, 1986) and its relationship to media richness (Dennis and Kinney, 1998; Lee, 1994; Rice, 1992; Markus, 1994; Fulk, 1993; Zack, 1993). In this research, we focus on one particular type of e-mail - e-mail which recipients perceive to contain advice.
The assessment of advice is beginning to be recognized as an important managerial process (Harvey, Harries and Fischer, 2000; Jungermann, 1999; Sniezek and Buckley, 1995). Advice is generally viewed as information that communicates an opinion about what could or should be done about a problem or issue. In our earlier example, any opinion or recommendation that the consultant receives in response to her query would be construed as advice. Importantly, advice is viewed as advisory rather than mandatory, as the most that advice-givers can realistically expect is to have a degree of influence, given the multiple, often-conflicting responses advice-seekers receive (Harvey, Harris and Fischer, 2000). As organizations become less hierarchical, the need for non-impositional forms of knowledge transfer such as advice giving and receiving is likely to increase.

In the following discussion, we draw upon two bodies of theory - adoption and informational influence - to build a process model of information adoption as it occurs via advice-based e-mails in organizational contexts. In presenting this model, our discussion is organized as follows: First, we describe how theories of adoption are relevant to the transfer of ideas. Second, we present theories of informational influence as a means for understanding how people are influenced to adopt ideas. Third, we present our model which integrates these two theoretical perspectives, a necessary step for describing adoption and influence in the particular domain of knowledge transfer. Finally, we describe and report on an empirical study performed to explore and validate the model.

**Theories of Adoption**

Adoption theories describe the processes people undergo when deciding to perform an activity for the first time (as distinguished from ongoing usage behavior). According to the Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1980) and its derivative, the Technology Acceptance Model (TAM) (Davis, 1989), people form intentions to
adopt a behavior or technology based on their beliefs about the consequences of adoption and their evaluation of these consequences. An information adoption-based view of knowledge transfer assumes that, just as people form intentions toward adopting a behavior or a technology, they similarly form intentions toward adopting particular advocated ideas and behaviors. As such, factors that influence the adoption of behaviors or technologies can be used to understand the adoption of advice as well.

Research using TAM has found that beliefs about the usefulness of adopting an advocated behavior are particularly consequential in determining user adoption intentions (Davis, 1989). By applying a TRA/TAM-based model of adoption to the domain of knowledge transfer, we propose that perceptions of the usefulness of received advice should similarly predict intentions toward adopting that advice. This reflects accruing evidence that perceived usefulness is a fundamental predictor of user adoption, with significant correlations to both current and future self-reported system usage (Davis, 1989). Additional support for the centrality of message usefulness comes from social cognition research that has found that the relevance of a stimulus is the key factor determining whether managers ignore the stimulus or go on to interpret it during problem sensing (Kiesler and Sproull, 1982). Information that is likely to produce useful task resolutions receives precedence and weight in judgment and choice processes (Feldman and Lynch, 1988). In this sense, the advice assessment and adoption process can be conceived of as a form of informational influence, whereby individuals are influenced by information received from others to the degree that they assess it as useful evidence about reality (Eagly & Chaiken, 1993; p. 630).

**Information Adoption and the ELM**

While adoption models are useful first steps in understanding how intentions toward a message are formed, these models were not designed to answer questions about the influence process itself. For instance, returning to our earlier example, when a consultant receives advice from several colleagues regarding the design of a new distribution process, what aspects of a received message are more or less consequential in influencing her to follow a piece of advice?
And further, how is it that different people can be influenced by the same message in different ways? In what situations does the source of the message have a major impact? When are people most likely to ignore the quality of the argument made? While TAM and the Theory of Reasoned Action (TRA) are useful first steps in understanding how behavioral intentions toward adopting a message are formed, these models were not designed to answer these types of questions. This study suggests an alternative model for teasing out some of the important effects of this extremely complex knowledge adoption process.

To understand the process by which individuals will be influenced by the messages that they receive, we draw on the Elaboration Likelihood Model (ELM) of informational influence. The ELM was developed by Petty and Cacioppo (Petty and Cacioppo, 1981; 1986) in order to account for reported differences in influence results across individuals and contexts. The ELM states that in different situations, different message recipients will vary in the extent to which they cognitively elaborate on a particular message, and these variations in elaboration likelihood affect the success of an influence attempt, along with other factors. Elaboration involves attending to the content of the message, scrutinizing and assessing its content, and reflecting on issues relevant to the message. Because of the cognitive effort involved, receivers don't elaborate on every message they receive, and some receivers elaborate on fewer messages than others do.

According to ELM, informational influence can occur at any degree of receiver elaboration, but as the result of very different influence processes; high levels of elaboration represent a central route to influence, while low levels result in a peripheral route. The central route occurs when recipients carefully consider the issues presented by the message, whereas the peripheral route occurs when recipients use simple decision rules to evaluate the message rather than analyzing its content. As elaboration likelihood decreases, peripheral cues have increasingly important effects on recipient attitude, belief and consequent influence, since recipients use these cues as heuristics or decision rules rather than undertaking the greater cognitive effort of elaboration (Petty and Cacioppo, 1986). The central and peripheral routes are viewed as the extremes of a single
underlying elaboration dimension. Thus at moderate elaboration likelihood levels, influence processes involve a complex mixture of both central and peripheral route processes.

The Role of Argument Quality and Peripheral Cues

According to the ELM, when an individual is able and willing to cognitively elaborate on a persuasive communication, the quality of the arguments contained within the communication will determine the degree of informational influence (Petty and Cacioppo, 1986). Thus the ELM identifies argument quality as the critical determinant of informational influence under conditions of high elaboration likelihood. When an individual is either unable or unwilling to process the arguments presented in a message, peripheral cues will play a more critical role in the influence process.

Peripheral cues are informational indicators that people use to assess content other than the content itself (Petty and Cacioppo, 1986). A potentially infinite number of these heuristics exist in interpersonal communication contexts (Gergen, 1982). For instance, in groups people are influenced by consensus cues and attributes of the group leader such as charisma. Individually, people often use cues pertaining to the message’s source when they are unable or unwilling to expend the effort to elaborate on the message’s content (Petty and Cacioppo, 1986). Research indicates that individuals following the peripheral route can be influenced by the source’s attractiveness, likeability, and credibility. In order to understand how individuals are influenced by advice transmitted via e-mail in the workplace, we are interested in the peripheral cues and that are most salient in such contexts.

Early research on the use of peripheral cues in CMC contexts found that the social presence of the communicator varies by media and affects persuasive communication by attenuating potential peripheral cues (Short, Williams and Christie, 1976). For example, research on rich versus lean media (Worschel, Andreoli and Eason, 1975; Andreoli and Worschel, 1978) and vividness effects
(Pallak, 1983) supports the notion that lack of peripheral cues and heuristics for informing attitude judgments serves to force message recipients to elaborate on the nature of the arguments presented, especially when the arguments are complex (Chaiken and Eagly, 1976). In this stream of research, source likeability was the peripheral cue investigated, a cue that is clearly attenuated by text-based media. But not all peripheral cues are attenuated by computer-mediated communication. While face-to-face interaction provides the many peripheral cues that enable us to establish a shared context (Zack 1993), we know that peripheral cues do operate in CMC contexts (Walther, 1992). For example, people use cues to delete e-mails they receive without scrutinizing the arguments they contain or even reading them at all.

While there are many potential cues which may operate within a CMC context, this research focuses on one peripheral cue, source credibility, that the literature suggests may be relevant both within the context of CMC and within knowledge work more generally construed. In the context of text-based messages, source credibility refers to a message recipient's perception of the credibility of a message source, reflecting nothing about the message itself. Early laboratory experiments on the role of credibility in informational influence found significantly more opinion change in the direction advocated by the communicator when the material was attributed to a high credibility source than when it was attributed to a low credibility source (Hovland, 1951; Hovland et al., 1953). These results were thought to be due to the association of high credibility sources with favorable outcomes. More recently, ELM researchers have taken a cognitive response approach to source credibility. In this view, higher levels of source credibility can interact with other variables to produce patterns quite different from the simple enhancement effect produced by Hovland (Heesacker, Petty and Cacioppo, 1983). For example, when people are highly involved in a message topic, source credibility has little impact on attitude change since individuals will scrutinize the argument rather than assess this peripheral cue. In contrast, when individuals are not
involved in a topic, source credibility has been found to be an important predictor of attitude change in general (Petty, Cacioppo and Goldman, 1981). In organizations, source credibility has been found to influence collaborative filtering (Ehrlich and Cash, 1996), and to affect members' attitudes towards organizational change implementation processes (Ellis, 1992). In information systems research, source credibility has been shown to positively influence low-participation users’ acceptance of recommendations made by knowledge-based systems (Mak and Lyytinen, 1997; Mak, Schmitt and Lyytinen, 1997). On the Internet, perceptions of source credibility play an important role in our judgments of cognitive authority (Rieh and Belkin, 1998).

In addition to its role as a peripheral cue under low elaboration likelihood conditions, source credibility has been conceptualized as a variable which might bias message processing - changing a message recipient's propensity to support or counter argue an advocated position. Further, research suggests that, under conditions of high elaboration likelihood, a credible source may potentially serve as an additional argument in favor of an advocated position (Chaiken and Maheswaran, 1994). Thus, although it is known that source credibility plays an important role in informational influence, the mechanisms underlying the role that it plays appear to be complex.

Conceptual Model

The ELM enables us to make predictions about the relative impact of various factors on information adoption under different levels of elaboration likelihood, but it excludes the role of information usefulness in the influence process. Yet we know from the adoption literature that usefulness is a key construct in adoption behaviors. Empirically, the amount of adoption variance explained by TAM generally exceeds levels of persuasion variance explained by theories of informational influence. We therefore expect that usefulness will be more strongly associated with information adoption than the peripheral cues and argument factors studied under ELM. Further, we posit that perceptions of information usefulness can be explained by theories of informational influence. For these two reasons, in the context of information adoption, we expect that perceptions of information usefulness will mediate between influence outcomes.
(i.e., intentions toward an advocated behavior) and the constructs of argument quality and source credibility. In this way, ELM processes are influential to the extent that they contribute to the perceived usefulness of the message.

Our integrated model of the information adoption process is presented in Figure 1. From TRA/TAM, we know that a critical aspect of the process by which individuals in organizations act on an advocated issue or behavior is the extent to which they believe the information contained within a message is useful for the task at hand. From ELM, we understand how this process depends on elaboration likelihood, and have suggested two likely antecedents of usefulness from this stream of research. In this way, our model integrates key internal validity factors from the informational influence literature with theory from TRA and TAM that has established the need to ascertain the external validity of a particular message. Thus, we view organizational knowledge transfer in terms of the cognitive structures involved in assessing the usefulness of received knowledge and the influence processes involved in changing them.

![Figure 1. Model of Information Adoption](image)

The discussion in the preceding sections and consequent relationships as depicted in Figure 1 are summarized in the following hypotheses, and apply to the context of received, computer-mediated advice.

*H1. The higher the perceived argument quality of a message, the more useful the message will be perceived to be.*

*H2. The higher the perceived credibility of a message source, the more useful the message will be perceived to be.*
H3. Messages perceived to contain information of high usefulness will be associated with higher levels of information adoption than messages perceived to contain information of low usefulness.

H4. Usefulness will mediate the effects of source credibility on information adoption, and argument quality on information adoption.

Moderators of the Informational Influence Process

According to the ELM, two factors influence the degree of elaboration that a receiver is likely to engage in – ability and motivation – and both must be present for extensive elaboration to occur (Petty and Cacioppo, 1986). Researchers in ELM manipulate these moderators to understand information processing under different contexts. By measuring differences in factors that are likely to alter levels of elaboration likelihood, we can find evidence of interactions among central and peripheral information processing activities. We therefore include them in our in situ model to confirm the basic tenets of ELM and to learn more about how central and peripheral processes work during actual interpretation processes.

Prior expertise of the message recipient alters elaboration likelihood by affecting individuals’ ability to process: Higher levels of receivers' prior knowledge and comprehension about the message topic increase the quantity and depth of issue relevant thoughts that occur to them and their ability to understand them, which in turn increases the likelihood of elaboration and decreases reliance on peripheral cues (Ratneshwar and Chaiken, 1991). Thus, drawing on the ELM, we would predict that in forming attitudes toward received advice, experts and gurus will attend less strongly to peripheral cues such as source credibility than will message recipients with lower levels of expertise, and will attend more strongly to the quality of arguments. Source credibility will be most important for messages received by non-experts.

Motivation levels also alter recipients’ elaboration likelihood. High levels of recipient involvement – operationalized as the personal relevance of the issue to the reader – tend to motivate increased elaboration on the message: As issues become increasingly important to the receiver, he
or she is more likely to undertake the cognitive effort to thoughtfully consider the message (Petty and Cacioppo 1986, Petty, Cacioppo and Goldman, 1981). Receivers that are highly involved with the message issue are likely to engage in high elaboration, while those that are not involved will be less likely to engage in elaboration and more likely to be influenced by peripheral cues such as source credibility. (Petty, Cacioppo and Goldman, 1981; Stamm and Dube, 1994). We expect to find that argument quality is more salient than source credibility under such conditions, while less involved recipients will be influenced by high levels of perceived source credibility.

Figure 2 presents the overall model of information adoption. Recipients’ perceptions of message usefulness are the direct determinant of information adoption, mediating the ELM-based informational influence processes described above. Message recipients’ domain-based expertise and involvement serve as moderators of the credibility-usefulness and argument quality-usefulness relationships by affecting elaboration likelihood through mechanisms of ability and motivation.

The preceding discussion and consequent relationships as depicted in Figure 2 are summarized in the following hypotheses:

**H5a.** The greater the recipient's expertise in the topic of the message, the more argument quality affects perceived message usefulness.

**H5b.** The greater the recipient's expertise in the topic of the message, the less source credibility factors affect perceived message usefulness.
H6a. The greater the recipient's involvement in the topic of the message, the more argument quality affects perceived message usefulness.

H6b. The greater the recipient's involvement in the topic of the message, the less source credibility factors affect perceived message usefulness.

METHODS

Overview

The theoretical model above was assessed through a study of the e-mail behavior of consultants in the consulting division of a major multinational public accounting firm. It employed both qualitative and quantitative data collection and analysis in a two-phase approach. First, forty semi-structured interviews were undertaken to gather rich qualitative data about the phenomenon. Based on the findings from the interviews, a survey was developed and conducted with a second sample of consultants regarding particular e-mails they had received.

The unit of analysis for the study is the individual e-mail message. Informants were asked to select actual e-mail messages they received that contain advice, recommendations, and suggestions for how to solve problems. This is consistent with the definition of knowledge as professional intellect involving knowing how, what, and why (Quinn, Anderson and Finkelstein (1996)).

Below we briefly describe the qualitative phase of this study. We then discuss the methods and results of the quantitative phase of this research. Before we begin these descriptions, we discuss the research site, since it is common to both phases of the study.

Research Site

This research took place at the city office of a multinational public accounting firm comprised of 103,000 professionals worldwide. However, the study was limited to their North American operations, henceforth referred to as ICBM, a pseudonym used to ensure confidentiality. ICBM revenues were $12 billion in 1999. ICBM is organized into three divisions – assurance, tax,
and consulting. Consulting is the smallest but fastest growing of the three divisions. Each division is structured into multiple lines of business. While several of the top consulting firms have specialized in information technology consulting within the past decade, ICBM is not one of these. ICBM has geographic headquarters throughout the U.S., each with its own consulting division serving the five lines of business (finance, manufacturing, IT & knowledge management, consumer, and strategy). Informants were all members of the Consulting division and headquartered at the city office where this research was conducted, but varied across lines of business.

Consulting organizations typically have mobile workforces, and ICBM is no exception. Only administrative staff and senior partners have offices. The rest reserve office space as needed on a daily basis. Consultants spend most of their time at their client sites, on assignments ranging from a few days to several months or more. The mobile nature of their work makes them extremely reliant on e-mail and other telecommunications technologies for getting their work done. All informants were officially headquartered in one city but they worked at client sites all over the U.S.. So while interviews took place in the office of one city, informants were geographically disbursed to client sites, and this minimized the likelihood of regional effects.

The e-mail system used by ICBM is a commercial e-mail system manufactured by a Canadian company. It has standard e-mail system features such as file attachment capabilities and the ability to track sent e-mails.

**Preliminary Qualitative Study: Methods and Analyses**

Since the model integrates two theoretical perspectives that together have not been applied to this domain, a qualitative study was deemed necessary as a first step in order to understand the phenomenon and refine survey instruments. This study consisted of hour-long face-to-face interviews with the researcher.

Permission was attained and arrangements were made for gathering data in ICBM-Boston in Summer 1997. At that time an e-mail was sent to all city office consultants (218) under the two senior partners who were supporting the study. This e-mail described the study generally as one on
knowledge management, and requested hour-long interviews with each participant. In this way a
comprehensive sampling strategy was used and every case was solicited. Forty-six consultants
responded to this e-mail by scheduling an interview. Of these 46, six ultimately canceled, resulting
in an interview response rate of 18%.

Interviews consisted of two parts and required informants to bring with them preselected e-
mail message printouts. First, an ethnographic, open-ended interview was conducted to elicit
informants’ perceptions regarding how they process advice-based e-mails in general, and how they
processed the e-mails they preselected, in particular. (See Appendix I for the interview guide used.)
Second, informants completed quantitative measures regarding their perceptions of each of their
preselected e-mail messages. While they did this, the researchers took note of the objective
characteristics of each e-mail message. This second part of the interview was primarily for the
purpose of instrument refinement and validation of the quantitative measures to be used in the
second phase of the study.

Prior to each interview, informants were instructed to save the next two to four e-mail
messages that they received that consisted of work-related but non-administrative advice or
recommendations. Informants were instructed to select messages that contained advice, as opposed
to those that were actually status reports, fact lists or logistical coordination. (See Appendix II for
actual instructions sent to informants.) Several e-mails are presented below to illustrate the type of
advice-based message we collected. All names and identifying information have been altered to
protect confidentiality.

John,

Just a couple of thoughts…You should give them an example of the type of answer
you are looking for. I think you should explain that the (Organization X) is considering
allowing XYZ to reimburse them for their expenditures… (47b)

Dana,

I was thinking about your request and even though I sent you my XYZ Test Mgt
handout files it doesn’t make sinse (sic) that you would be using them in the renovation

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methodology. I believe that your renovation methodology should just refer to the testing methodology. What do you think?... \( 112ma \)

Frank,

On the Y2K conference call the other week when we discussed the merger implications to our practice it was stated that XYZ already had a good process for the renovation/ conversion stage. Should we be spending a lot of resources to develop one when we will be able to share theirs in January? \( 03f \)

Analyses of the interview data sought to understand the extent to which they reflected the *a priori* theoretical model and to explore ways in which the theory might not be applicable. Content analyses of these data was performed following the first-order analysis procedures outlined by Spradley (1979). First-order analysis seeks to represent the data within domains as they are conceived of by the informants. Interview tapes were transcribed and then memoed, and a domain analysis was conducted to identify major themes or domains. Once the domains were specified and coded, they were then mapped onto the theoretical constructs of interest. The domains mapped sufficiently well to support the next step of undertaking a confirmatory study. Interviews also informed development of the quantitative survey instrument, since interviewees were asked to complete the survey instrument in addition to answering interview questions.

From these and similar data we concluded that the model was sufficiently supported to proceed with the quantitative, confirmatory phase of the study, as follows:

**Quantitative Study Methods**

Following completion of the qualitative data collection, quantitative data were gathered by soliciting survey responses from the 178 consultants who had *not* been interviewed in the first phase of the study. We sent these 178 consultants a second e-mail from the two top partners requesting their participation and informing them that they would soon be receiving a survey packet in the mail. A survey packet was then sent to the homes of this group of 178. The packet included a cover letter from the two senior partners sponsoring the study, stating their endorsement of the
study and their selection of the recipient as a participant. It also included a letter from us explaining in general terms the nature of the study (knowledge management), the instructions for survey completion and e-mail selection, and an explanation of the procedures we would be using to ensure confidentiality and proper handling of responses. Informants were asked to complete the demographics questionnaire once, and the e-mail assessment instrument twice (two copies were included) as they pertained to each of the two e-mails selected, and to send these to us along with the actual e-mails they had used as the basis for their responses.

As above, survey respondents were asked to select the next two actual e-mails they received that fit the definition of *advice or recommendations concerning a non-administrative task*. Other than demographics, all survey questions pertained to these two e-mails. As in the first phase of the study, instructions were designed so that informants selected messages that were advice-related. Recipients’ self-response estimation of the percent received of these type of e-mails was 36%. By asking informants to complete instruments for the next two e-mails they received in time of the type we were interested in, we minimized the threat of e-mail selection bias by the informants, since this would occur randomly. The date on all e-mails received was compared to the date of survey mailing to verify that the e-mail had been received by the respondent within two weeks of the mailing, as opposed to having been selected from archives.

Out of these 178 informants solicited, three had left the organization, two were on long term assignment out of the country, and two requested that they be removed from the study due to time constraints. Of the remaining consultants, 37 returned the completed survey packet. To increase the sample size, a second packet was mailed to the 144 consultants who did not respond to the initial survey as mailed. In this second mailing, the ordering of questions was rearranged within the questionnaire to allow for testing of order effects. Twenty-two consultants returned this packet. Researchers then telephoned those consultants that had not returned either packet to solicit additional responses. This resulted in an additional 4 surveys being returned. In total, surveys were returned by 63 ICBM consultants for a 35% response rate. Fifty-four of these completed two instruments as requested – one for each of two separate e-mails received – and sent in these two e-
mails along with their corresponding surveys. Five completed only one survey and sent in the one e-mail that corresponded to it, and the remaining three completed one e-mail instrument but did not include the actual e-mails.

While a 35% response rate is not high, it is reasonable considering the demands placed on the time of these consultants. These respondents are representative of the city office as a whole in terms of their age and division, however they do reflect a slightly higher than average percentage of senior managers and above (23% of this sample are senior managers, while only 18% of employees of this office are senior managers). Perceptual measures of source credibility, argument quality, usefulness, adoption, expertise, and involvement were collected, and these items are listed in Appendix III. All actual e-mail messages except three were also collected. The focus on actual messages during interview and survey completion allowed us to target the informant on the specific stimuli that elicited the focal attitudes.

Measures

Each of the constructs in the theoretical model are operationalized using validated measures or measures adapted from validated instruments. All measures were pre-tested prior to use on the sample of interviewees.

The section on demographics and electronic communication behavior was adapted from those measures used by Sproull and Kiesler (1986). Items adapted from Wu and Shaffer (1987) are used to measure source credibility and information adoption. The dependent measure was operationalized utilizing three items which assessed self-reported information adoption. Information usefulness and argument quality items are a subset of those used and validated by Bailey and Pearson (1983). The measures of issue involvement and expertise are from Stamm and Dube (1994).

A number of authors have studied the underlying structure of source credibility, both at the individual and organizational level (see Newell, 1993 for a review). While many dimensions have been identified, two sub-dimensions originally identified by Hovland (1951) have consistently
emerged -- competence and trustworthiness (Weiner and Mowen, 1986; McGinnies and Ward, 1980; Mowen, Wiener and Joag, 1987). Competence-based source credibility refers to expertise and expertness, while trustworthiness-based source credibility is a function of the perceived character and integrity of the source. We utilized this sub-dimensional structure in our operationalization of source credibility.

QUANTITATIVE ANALYSIS AND RESULTS

Demographics and Descriptive Statistics

Of the 63 ICBM survey respondents, 68% are male, reflecting the higher percentage of male consultants employed by the organization. Respondents’ mean job experience is 4.67 years, mean age is 36, and mean organizational tenure is one year, reflecting the high turnover typical in consulting organizations. As for educational level attained, 100% of consultants have Bachelors degrees, 40% of these have Masters-level degrees, and 8% have some post-Masters. Respondents worked in various industrial sectors, as indicated in Table 1:

<table>
<thead>
<tr>
<th>Line of Business</th>
<th>% Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Services</td>
<td>19%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>30%</td>
</tr>
<tr>
<td>IT &amp; Knowledge Management</td>
<td>33%</td>
</tr>
<tr>
<td>Consumer Markets/Retail</td>
<td>6%</td>
</tr>
<tr>
<td>Strategy/Value Management</td>
<td>8%</td>
</tr>
<tr>
<td>Other</td>
<td>4%</td>
</tr>
</tbody>
</table>

Table 1. Industries in which Respondents Consult

Due to the spread of expertise across both technical and non-technical domains, we found wide disparities in technical skill levels across informants.

Respondents were also asked about their mediated communication behavior. On the average, respondents reported receiving 14.4 e-mails per day and sending 8.4 per day. This is in addition to the 7.5 voice mails they receive and the 6.5 voice mails they send each work day. They check their e-mail an average of 2.7 times per day when they are at their client site, and 4.7 times
per day at headquarters. On the whole, this mobile work force relies on mediated communication to perform their everyday work, however, for the majority, the content of their everyday work is not IT-based. T-tests were used to test for effects of respondent characteristics. There were no significant differences by age, education, line of business, organizational tenure, or any of the telecommunications characteristics measured.

**The Measurement Model and Preliminary Analyses**

For reasons described below, results are reported based on the analysis of the first e-mail cohort only, for a sample size of 59. Data were assessed for normality visually and by the skewness and kurtosis of each. All measures are below the critical value for skewness at alpha=.01 and n=59. Kurtosis for a normal distribution equals 3. Kurtosis values are less than three, but not significantly so. This indicates slight platykurtosis, resulting in actual power being less than nominal power.

Table 2 below presents the means and standard deviations of all constructs in the model for the reduced sample of cohort-one e-mails (n=59), along with construct correlations. The largest correlation (.42) between independent constructs is between usefulness and argument quality, but is not enough to cause a multicollinearity problem, as would occur if the correlation were greater than .8 (Billings and Wroten, 1978). As is predicted by theory, involvement and expertise are correlated, but these two constructs are not analyzed together in any model. All variables are measured using a standard 7-point Likert scale.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>S.D.</th>
<th>Scale Range</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Argument Quality</td>
<td>5.42</td>
<td>1.25</td>
<td>1-7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Source Credibility</td>
<td>4.83</td>
<td>1.27</td>
<td>1-7</td>
<td>.24</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Usefulness</td>
<td>5.12</td>
<td>1.44</td>
<td>1-7</td>
<td>.42</td>
<td>.34</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Information Adoption</td>
<td>3.52</td>
<td>1.03</td>
<td>1-9</td>
<td>.25</td>
<td>.32</td>
<td>.49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Expertise</td>
<td>4.81</td>
<td>1.46</td>
<td>1-9</td>
<td>.17</td>
<td>.33</td>
<td>.31</td>
<td>.34</td>
<td></td>
</tr>
<tr>
<td>6. Involvement</td>
<td>4.40</td>
<td>1.79</td>
<td>0-1</td>
<td>.07</td>
<td>.39</td>
<td>.33</td>
<td>.34</td>
<td>.52</td>
</tr>
</tbody>
</table>

Note: N=59.

Table 2. Descriptive Results and Correlation Matrix
The measurement model was tested by examining the reliability of individual items, the internal consistency of constructs, and discriminant validity. An acceptable measurement model was built using reliability and factor analyses of the first message reported on by each respondent (n=59), and hypotheses were tested based on this model using standard regressions, with results presented below. However, an attempt to build an acceptable measurement model using the second of the two e-mails reported on by these respondents failed, as the Cronbach alpha for the dependent variable was unacceptably low (.52). It is not clear why this is the case, but we believe that the heavy time constraints placed on these consultants may have created fatigue effects as they hurried to finish the survey task. Because of this, a repeated measures analysis was not possible with the second cohort of e-mail cases. Results are therefore reported based on the analysis of the first e-mail cohort only.

Discriminant validity was assessed using factor analysis on cohort-one e-mails. Internal consistency was assessed using Cronbach’s alpha, and the reliabilities reported in Table 3 are well within accepted levels (Nunnally, 1967, p. 226).

<table>
<thead>
<tr>
<th>Construct</th>
<th>No. of Items</th>
<th>Cronbach’s Alpha – e-mail – Cohort One N=59</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information adoption</td>
<td>3</td>
<td>.6412</td>
</tr>
<tr>
<td>Source Credibility</td>
<td>4</td>
<td>.7905</td>
</tr>
<tr>
<td>Argument Quality</td>
<td>3</td>
<td>.8225</td>
</tr>
<tr>
<td>Usefulness</td>
<td>3</td>
<td>.8601</td>
</tr>
<tr>
<td>Involvement</td>
<td>2</td>
<td>.7306</td>
</tr>
<tr>
<td>Expertise</td>
<td>2</td>
<td>.7426</td>
</tr>
</tbody>
</table>

Table 3. Internal Consistency of Model Constructs

**Hypothesis Testing Using OLS**
Hypothesis 1 states that higher levels of perceived argument quality will be associated with significantly higher reported levels of perceived message usefulness. Similarly, hypothesis 2 states that higher levels of perceived source credibility will be associated with significantly higher levels of perceived message usefulness. To test for these effects, usefulness was regressed onto both argument quality and source credibility, for the first cohort of e-mails only (n=59). Results were significant as predicted by the model (F=8.25, p<.001), with an adjusted $r^2$ of .20 (d.f.=2,57). Both independent constructs were significant in this model: The beta coefficient for argument quality was .34 (t=2.73, p<.01), while that of source credibility was .24 (t=1.94, p<.05).

Hypothesis 3 states that higher levels of perceived usefulness will be significantly associated with higher levels of reported information adoption. When perceived information adoption was regressed onto perceived usefulness, results were significant as predicted (F=18.91, p<.001), with an adjusted $r^2$ of .22 (d.f.=1,58). Hypothesis three is confirmed.

Hypothesis 4 posits that usefulness mediates the relationships between argument quality and information adoption. Three regressions are performed to confirm mediation (Baron and Kenny, 1986). First, the mediator - in this case usefulness - is regressed onto the independent variables of argument quality and source credibility. We know this relationship to be significant as hypothesis 1 above (an adjusted $r^2$ of .20, F= 8.25 (d.f.=2,57; p<.001). Second, the dependent variable of information adoption is regressed onto the independent variables of argument quality and source credibility. Results are also significant, with an adjusted $r^2$ of .11, F= 4.80 (d.f.=2,57; p<.05). Both independent constructs were also significant in this model, although less so for source credibility than for argument quality: The beta coefficient for argument quality was .30 (t=3.36, p<.01), while that of source credibility was .14 (t=1.57, p<.10).

Finally, the dependent variable of information adoption is regressed onto both the independent variables of argument quality and source credibility, and the mediator, usefulness.
Results are again significant, with an adjusted $r^2$ of .22, $F= 6.95$ (d.f.=3,56; p<.001). The effect of argument quality on information adoption is significant in the second regression (without usefulness), but is non-significant in the third regression which includes usefulness ($B=.11, t=1.15$). The effect of source credibility on information adoption is also significant in the second regression (without usefulness), but is non-significant in the third regression which includes usefulness ($B=.08, t=.98$). Usefulness is highly significant in this last regression ($B=.40, t=4.18$ Sig. T<.001).

These findings, taken together, indicate pure mediation of the both the independent variables in the model, argument quality and source credibility, by the mediator usefulness.

Hypothesis 5 states that expertise will moderate the effects of argument quality and source credibility on usefulness. Our model suggests that individuals with higher levels of expertise will perceive the quality of the message argument to be of high utility, while those with lower levels of expertise will find credibility cues more useful. Hypothesis 6 repeats this theoretical argument for the moderator of involvement, since involvement also increases elaboration likelihood. To test for these moderating effects, moderated multiple regression models were built in which all data were standardized, and product terms were built by multiplying the indicators of the independent construct with those of the hypothesized moderator (Jaccard, Turrisi, and Wan, 1990). The independent constructs of argument quality and source credibility were analyzed separately since the hypothesized moderating effects are in opposing directions and would therefore obscure one another. Table 4 below presents results of these analyses. In it we see that the beta values of the interaction terms are significant for argument quality, but only marginally so for source credibility. The F-statistic of the change in $R^2$ for each overall model indicates the extent to which whether the addition of the moderator significantly increased the variance explained by the model over that explained without the moderator.
These analyses indicate that argument quality significantly interacts with both expertise and involvement to affect perceptions of message utility, in support of hypotheses 5 and 6. Message recipients who are experts in the topic or highly involved in it will find argument quality more useful than will novice recipients, or those not involved in the topic at hand. We see weaker evidence of moderation of source credibility by expertise and involvement, but only the effect of involvement is significant. Figure 3 below presents these results graphically for the moderator of expertise, by splitting the sample (n=59) at the median expertise. This technique provides visual support for the consequences of moderation by elaboration likelihood. We see that usefulness is significantly correlated with source credibility for those recipients reporting lower levels of expertise, but this correlation is not significant at higher reported levels of expertise. This is consistent with theory, since the influence of the peripheral cue of source credibility decreases as elaboration likelihood increases. Usefulness is significantly correlated with argument quality only at high levels of reported expertise, as is also predicted by theory. These findings support the
theory that elaboration likelihood moderates the relationships among argument quality, source credibility, and usefulness.

![Figure 3. The Moderating Effect of Expertise](image)

Note: Pearson correlation coefficients greater than .45 are significant.

Figure 3. The Moderating Effect of Expertise

DISCUSSION

This study lends support to an informational influence view of information adoption as it relates to receiving advice in organizational contexts. In the study, it was found that consultants varied in the degree to which they were influenced to adopt specific pieces of advice based on their perceptions of the usefulness of that advice. Importantly, perceptions of usefulness were
differentially affected by elements of the received messages, depending on the elaboration likelihood of the situation.

According to the ELM, individuals following the peripheral route are not able or motivated to process the arguments in a message and thus are influenced primarily by peripheral cues. In our study, the peripheral cue selected for investigation was source credibility. The rationale for choosing this cue from among the many cues potentially operating in CMC contexts was as follows: First, early research suggests the importance of source credibility in learning and knowledge transfer (Hovland, 1953). Second, many of the other peripheral cues typically examined in studies of ELM, such as perceptions of source attractiveness and likeability, are less likely to be salient in a CMC context than in face-to-face or other visually-rich situations. Finally, the heuristic "trust an expert" seemed plausible for the task at hand - determining which pieces of advice to follow in a work context.

Source credibility is significantly associated with information usefulness in our model, and tends to function as a peripheral cue as we had predicted based on the ELM. However, empirical support for this function is weak, consistent with the notion that source credibility plays a more complex role in the ELM than that of a simple heuristic cue (Heesacker, Petty and Cacioppo, 1983). As noted, in previous research, source credibility has been found to function as an additional argument factor for those following the central route, and some have claimed that it may bias people's perceptions of argument quality (Chaiken and Maheswaran, 1994). Ex post facto, it is difficult to test for these alternative hypotheses regarding the role of source credibility. While our findings could be an indication that central processors were using source credibility as an additional argument for advice usefulness, further research is needed which is specifically designed to examine the impact of source credibility under different elaboration conditions in the information adoption process.

Without strong results explaining how source credibility functions in the information adoption process, the model is not very good at accounting for the behavior of peripheral processes. It seems likely that some additional cues played a role in the influence of peripheral processes in
this study. While prior research has identified several cues that have an impact under the peripheral route, it may be that cues specific to a CMC-context are most critical in CMC-based information adoption behavior. For instance, cues relating to the relationship of the source to the recipient (e.g., relative hierarchical status) or characteristics of particular e-mail themselves (e.g., the subject heading; number of people copied in the message; status of people copied in the message) may be particularly fruitful as the basis for further investigation in order to gain a better understanding of the heuristics that operate in CMC-based knowledge work.

Perhaps the most important result of our study is the finding that information utility assessments mediate influence processes in knowledge adoption contexts. This was found to be the case for both central and peripheral processes. In these data, argument quality (and to a lesser extent source credibility) were found to be associated with usefulness but not information adoption. The influence of these two factors occurs as a function of their transformation into perceptions of usefulness, a transformation that appears to be affected by the elaboration likelihood of the advice context. One may wonder why this important role of usefulness has not been acknowledged in previous work under the ELM. Two possible explanations could account for this "oversight." First, most studies conducted under the rubric of the ELM have been tested in situations where the usefulness of messages has not been allowed to vary in the experimental task. For instance, many ELM studies have been conducted as paper-and-pencil tasks where participants receive a single communication about an issue (e.g., Senior Year Comprehensive Exams) and then are asked to form a judgment. Obviously, in such tasks, usefulness is held constant, making it difficult to assess a mediating role played by usefulness. Alternatively, it may be that information usefulness is particularly relevant to the domain investigated in this paper. In organizational advice giving and receiving, the objective may not be to convince others to change their attitudes toward a given behavior as much as it is to convince others that the advice given is credible. While this is a subtle distinction, it leads to a different model of the influence process - one in which assessments of usefulness (i.e., attitudes toward the information) rather than attitudes toward the behavior determine adoption intentions.
We believe that our conceptualization of the information adoption process, with usefulness playing a major mediating role, offers interesting avenues of research both for ELM researchers interested in advice adoption and for others interested more generally in knowledge transfer. For example, we need to understand how well this model reflects information adoption in other organizational contexts. Perhaps knowledge workers that are afforded more slack time for research and innovation take a less instrumental approach to information adoption, one in which usefulness figures less prominently. Also, this model may be more or less valid for explaining information adoption via technologies other than e-mail. For instance, how would a “pull” technology such as a discussion board compare to the “push” technology of e-mail studied here?

This study contributes to theory in information systems in several ways. When knowledge sharing takes place across time and distance it necessarily transpires via various media rather than face-to-face. For this reason knowledge transfer is increasingly a problem of interest to information systems researchers, and this study offers a theoretically grounded approach to this complex problem. Here, knowledge transfer has been operationalized as the adoption of advice, and informants report that a significant amount of their received e-mail falls into this category. These findings support the accruing evidence that CMC is being used for ambiguous and complex communication in organizations (Markus, 1994). Knowledge work is becoming increasingly mobile, global and reliant on telecommunications, and this study presents a theory of how one form of knowledge is transferred in such contexts.

The central contribution to information systems research here is the integration of ELM with TAM (Davis, 1989) and the light this may shed on our understanding of the antecedents of usefulness. In this respect, this study builds on the growing body of literature on the antecedents of usefulness in the context of TAM (Agarwal and Prasad, 1997; Karahanna, Straub, and Chervany, 1999; Venkatesh and Davis (2000). These studies have generally taken an inductive approach to understanding predictors of usefulness, as is appropriate given the lack of available theory in the technology domain. By focusing on adoption of information rather than adoption of technology, we have been able to apply a well-developed body of theory to the problem of understanding
antecedents of usefulness. It remains to be seen whether this integrative model can contribute to our understanding of technology adoption processes.

It should be noted that this research is limited to non-interactional recipient behaviors, in response to a single mediated message. Yet knowledge work is an interactional process (Nonaka, 1994) that transpires in organizations over all available media and face-to-face. We chose to bound this study in this way in order to reduce some of the variance inherent in this highly complex phenomenon. By narrowing the scope as such, we have produced results that we hope will inform broader research that does take relational factors into account. By limiting the investigation to a single medium channel (CMC-based e-mail), we were able to minimize confounding channel factors, but this also prevents us from making any claims about the media, since no comparisons have been made. It also raises the problem of whether the novel findings here - the mediation of usefulness and the weak source credibility results - are due to the CMC media or the knowledge adoption domain. Since no manipulation was performed to investigate this, we can only claim generalization of these findings to knowledge adoption that results from e-mail content and not any other form of knowledge transfer. However, we believe that it is the context of ongoing organizational work and the knowledge domain that requires modification of ELM to take perceptions of information utility into account, not the mediated nature of the knowledge. This problem is a key research question that remains to be addressed.

Practically speaking, by understanding how people adopt mediated advice, we can design processes that support effective information adoption. And since knowledge transfer and information adoption are embedded in key organizational processes such as new product development, systems implementation, organizational restructuring, and change management, such design issues present an important avenue for this type of research. Practitioners can benefit from understanding the information adoption component of knowledge transfer as dual-process informational influence that reflects complex tradeoffs among central and peripheral processing routes. For example, it may sometimes be appropriate to design knowledge work so that elaboration likelihood is increased when central route processes are optimal. For important tasks
and decisions, distractions and multi-tasking can be minimized to induce elaboration. This leads us to ask why and how some practitioners are able to assess advice quickly and effectively despite multitasking and other job distractions. And by viewing knowledge transfer from the perspective of information adoption, practitioners can understand why it may be important to take non-message factors - such as recipient and context characteristics - into account when sending advice-based messages.

Practitioners will also be interested in the implications of this research for the design of knowledge management systems. Our findings suggest that the external validity of potentially shared knowledge - how useful it is for the problem at hand - is actually more important than but also encompassing of the internal validity of that knowledge. This provides empirical support for the knowledge management precept that effective knowledge transfer systems should be designed to balance these two attributes of knowledge. We now have a theoretical explanation for why knowledge management systems with a central validation function risk sacrificing external validity and hence the usefulness of that knowledge for adoption assessment. The same can be said for validation processes that strip off so much of the knowledge context (such as the source) that few cues are available for peripheral processing. At the same time, valid knowledge is useful knowledge, so organizations cannot neglect validation processes. For mediated knowledge transfer, we find that perceptions of internal validity contribute greatly to our ability to assess external validity. But it is the external validity that ultimately determines whether some advice will be adopted or not.
APPENDIX I. QUALITATIVE INTERVIEW GUIDE

1. Do you receive work-related e-mails that consist of advice and recommendations? If so, how many in what period of time? In general, are they helpful to you? Do you use them? Do you solicit them?

2. When you receive information from a colleague via e-mail, how do you decide whether or not to act on its recommendations? Probe if credibility is mentioned: What you mean when you say that someone is credible? Probe if argument quality is mentioned: What do you mean when you say the advice is well-argued? Probe if usefulness or relevant is mentioned: What do you mean when you say the advice is useful/relevant?

2. When trying to solve a problem, what things do you look for on an e-mail to decide whether or not to follow the advice in the e-mail?

3. When you receive advice or a recommendation via e-mail, how do you decide whether or not the source is credible? If you have some preconceptions in this regard, do you rely on them? If not, what else do you do?

4. Can you think of an instance in which you received advice electronically from someone credible but then chose not to follow that advice? If so, please describe the situation and talk about some of the reasons why you disagreed with or chose not to follow the advice it contained.

5. Can you think of an instance in which you received advice electronically from someone you did not think was very credible, but chose to follow it anyway? If so, please describe the situation and talk about some of the reasons why you chose to follow that advice.
6. Can you think of an instance in which you received advice electronically from a credible source about a topic which you did not know very much? If so, please describe the situation and talk about some of the reasons why did or did not chose to follow that advice.  Probe: Does it make a difference how much you know about the topic?

7. Can you think of an instance in which you received advice electronically from a credible source about a topic which you were extremely interested in? If so, please describe the situation and talk about some of the reasons why did or did not chose to follow that advice.  Probe: Does it make a difference how interested you are in the topic?

8. Now lets talk about each of the e-mails you brought with you today. Starting with the first, please tell me why you received it, and what thoughts occurred to you upon first reading it? Did your view of it change over time? Ultimately, what did you do with it and why? (probe on why). When did you act on it, relative to when you received it?
APPENDIX II. SURVEY INSTRUCTIONS TO INFORMANTS

Dear ICBM Consultant, November 12, 1997

My research investigates how people perceive and use work-related knowledge that is transferred electronically. This study investigates “electronic knowledge” in the form of e-mail. Enclosed is a survey that consists of two parts: 1) Demographics, and 2) Two identical sheets of survey questions, each pertaining to an e-mail that has been sent to you for work-related purposes.

Over the next few weeks, please print out and set aside the first two e-mails you receive that advise you regarding a non-administrative action. The action can be anything, small or large (e.g. make a decision, provide a response, give feedback, form a plan of attack, etc.). It doesn't matter whether you have acted (or plan to act) on them or not. I am as interested in e-mails you have not acted on as I am in those you have.

Once you have two of these, please complete the attached material as follows:

1. Complete the cover sheet asking about demographics and telecommunications history.
2. Complete both sides of the e-mail survey for each of the two e-mails you have set aside. Some of the questions are repetitive for statistical purposes – please go though it fairly quickly.
3. Staple the e-mail surveys to the actual e-mails you printed out, and mail them directly to me along with the demographic sheet in the enclosed stamped, self-addressed envelope.

As an academic researcher, I hold the confidentiality of your responses in highest regard: I have signed an ICBM nondisclosure agreement. You will be assigned a code number so that your answers to my questions will be known only to me, and the key to this coding sheet will be destroyed as soon as the data is entered into my computer (within 48 hours of receipt). All e-mails will also be assigned numerical codes. You may also choose to white-out any specifics on them as you see fit.

I am confident that my findings will provide value to ICBM in its knowledge management initiatives, and will keep you informed of the results of my analyses as I complete them. Please e-mail me at xyz@xyz.edu or telephone (617) 321-4321 if you have any questions. Your participation is greatly appreciated!
APPENDIX III. QUANTITATIVE MEASURES AND INDICATORS

Source credibility (a=.8296): Adapted from Wu and Shaffer (1987)

Competence-based (2):

How knowledgeable is the person who wrote this message, on the topic of the message?

1 2 3 4 5 6 7
Not knowledgeable Knowledgeable

To what extent is the person who wrote this message an expert on the message topic?

1 2 3 4 5 6 7
Not expert Expert

Trustworthiness-based (2):

How trustworthy is the person who wrote this message, on the topic of the message?

1 2 3 4 5 6 7
Not trustworthy Trustworthy

How reliable is the person who wrote this message, on the topic of the message?

1 2 3 4 5 6 7
Not reliable Reliable

Involvement (a=.6727): (Stamm and Dube, 1994).

How involved are you in the topic of this e-mail?

1 2 3 4 5 6 7
Not at all A great deal

How much has the issue discussed in this e-mail been on your mind lately?

1 2 3 4 5 6 7
Not at all A great deal

Expertise (a=.8049): (Stamm and Dube, 1994).

How informed are you on the subject matter of this issue? (Adapted from Constant et. al., 1996)

1 2 3 4 5 6 7
Novice Expert

35
To what extent are you an expert on the topic of this e-mail?

1 2 3 4 5 6 7
Not at all To a great extent

**Argument Quality (a=.8444):** *(From Bailey and Pearson, 1983).*

Please rate the content of this e-mail on the following scales, as in: “The information in this e-mail is _______”

- Complete 1 2 3 4 5 6 7 Incomplete
- Consistent 1 2 3 4 5 6 7 Inconsistent
- Accurate 1 2 3 4 5 6 7 Inaccurate

**Usefulness (a=.8699):** *(From Bailey and Pearson, 1983).*

Please rate the content of this e-mail on the following scales, as in: “The information in this e-mail is _______”

- Valuable 1 2 3 4 5 6 7 Worthless
- Informative 1 2 3 4 5 6 7 Uninformative
- Helpful 1 2 3 4 5 6 7 Harmful

**Information adoption (a=.6520):**

Have you acted on the content of this e-mail? (Y/N) If yes, How closely did you follow its suggestions?

0 1 2 3 4 5 6 7 (0 = Not at all) With major modifications To the letter

To what extent does the content of the e-mail motivate you to take action?

1 2 3 4 5 6 7 Not motivated Highly motivated

To what extent do you agree with the action suggested in the message?

1 2 3 4 5 6 7 Completely disagree Completely agree
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