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An Exploration of the Impact of Communication Technology on Organizational Learning

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INTRODUCTION

The introduction of communications technologies in organizations over the past several decades has complicated communications between individuals and has become the subject of extensive research in areas of media selection, media use and communications outcomes (Daft and Lengel, 1986). Concurrently, organizational learning and the development of human capital in organizations has assumed a central role in both research and practice (Weick and Westley, 1996). Communication plays a critical role in workplace learning and knowledge development as well as learning in more formal settings. Consider the following:

“to learn is to use language, to communicate, both at the interpersonal and intrapersonal level. At the intrapersonal level, language allows for the reflection, which, along with action or behavior, is a critical part of learning as described by most organizational theorists (Fiol and Lyles, 1985)... at the primary level then, all learning occurs through social interactions. Language is both the tool and the repository of learning...” (Weick and Westley, 1996, pg. 446).

Thus the two domains of organizational communication and organizational learning are highly related and the role of media use on individual learning in organizations is an important, yet understudied area of research. Drawing on individual learning theories, media richness theory, and organizational communication, it is the intent of this dissertation to explore the emergence of rich communications during learning interactions which occur in two media – synchronous face to face and asynchronous online within organizations. This is different from much research in the area because the focus here is to understand the impact of media use on individual interpretations during communications transactions (Huber, 1991). Much research in the area focuses on the antecedents and conditions of media

choice. The proposed research question of this dissertation is – how and why does communication technology impact organizational learning at an individual level?

CONCEPTUAL DEVELOPMENT

Learning theory and sense-making provide the conceptual background for understanding individual learning in organizations. Based on studies of learning in formal education, learning theories can be classified as objectivist or constructivist (Leidner and Jarvenpaa, 1995). Objectivist learning theory posits that learning is the straightforward act of acquiring objective information. In contrast, constructivist learning theories posit that knowledge is constructed by the learner.

Collaborationists extend this constructed process of learning to involve individuals interacting with their peers. In this sense, the goal of the learning process is meaning making through processes of articulation and reflection that emerge from the learner’s dialogue with others. Time for reflection is an important component of this process. This complements Weick’s notion of sense-making as a socially embedded activity involving individuals engaged in their own processes of enactment, selection and retention through their social interactions (1979). Further, sense-making requires social interaction that involves triangulating, affiliating and deliberating – all of which imply a need for time during the sense-making process so that learning outcomes are enhanced (Weick, 1997). Additionally, Huber (1991) outlines several processes associated with learning including knowledge acquisition, information distribution, information interpretation and organizational memory. In both the formal learning and organizational learning perspectives, conversations and time play an important role in the creation and modification of knowledge.

Given the significance of dialogue to individual learning, organizational communication and media richness are important foundations for this research. Individuals communicate in organizations for two main reasons -- to reduce uncertainty and to reduce equivocality (Daft and Lengel, 1986). The reduction of uncertainty requires the acquisition of more information.

The reduction of equivocality however, is related to making sense of multiple interpretations of information (Weick, 1979, Daft and Lengel, 1986). Accordingly, rich information is required to reduce equivocality. Rich information is defined as information that has the ability to change understanding within a time interval.

Media richness is defined as a property of a medium that enables it to support communications that reduce equivocality quickly. The characteristics that define media as rich or lean include its ability to support maximum cue transmission, immediate feedback, language variety and personal focus (Daft and Lengel, 1986). Since this original conceptualization of media richness theory, many researchers have conducted research that supports and contradicts the theory (Dennis and Kinney, 1998). As a result of this body of research, media richness has been related to concepts such as social influence (Fulk, 1993), media symbolism (Trevino et al, 1990), situational factors (Trevino et al, 1987), social presence (Short et al, 1976, Rice, 1993), genres (Yates and Orlikowski, 1992, Orlikowski and Yates, 1994), and critical mass (Markus, 1987). It has also been studied as an emergent property of the medium and the context (Lee, 1994), re-created as channel expansion theory (Carlson and Zmud, 1999), and studied longitudinally (Burke and Chidambaram, 1999). Finally media richness has also been used to study formal collaborative learning environments in the context of educational technology. These studies have also produced results that support and contradict media richness theory. Specifically, learning, as a highly equivocal task, is predicted to have the best outcomes in face to face settings. However numerous researchers have found that lean media such as groupware used to support proximate and non-proximate group work has as rich or richer outcomes than face to face, non-mediated group work (Alavi et al, 1995, Hiltz and Wellman, 1997).

Media richness studies demonstrate that richness is not an objective property of the medium but must be considered along with contextual, task-related and individual factors. This study suggests an additional tension to examine between media richness theory involving learning communications as contrasted with other types of communication. This tension relates to the role that time plays in defining rich information. Media richness posits that exchanges of information that quickly change understanding are considered rich communications (Daft and Lengel, 1986). This leads to face to face communication being the richest medium. In contrast, collaborative learning theory and sense-making perspectives emphasize peer to peer interaction that allows time for reflection and deliberation. Thus 'slower' communication is important to learning. This may lead to certain communications technologies, which facilitate these features of learning, as being considered rich, contrary to predictions of media

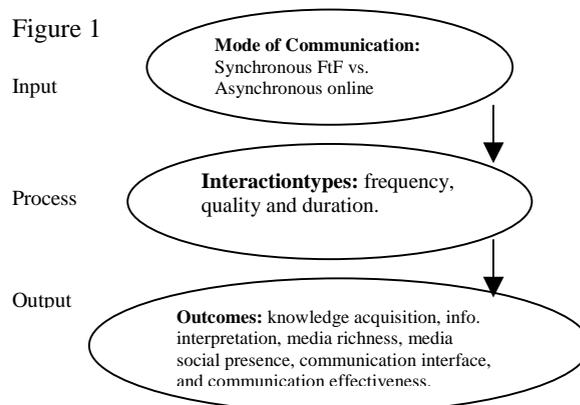
richness. This dissertation seeks to understand this tension and to explore why and how communication media use can support rich learning outcomes.

PROPOSED RESEARCH MODEL

The proposed research model employs an input-process-output model of communications. The input variable is the communication mode (synchronous, face to face and asynchronous, online). The process is the communication activity that takes place. In order to understand characteristics of communication in learning situations, further literature was reviewed. Several studies were found to offer various views of the character of these learning conversations (Wagner, 1994, Henri, 1992, Oliver and McLoughlin 1997). For purposes of this work, the Oliver and McLoughlin categorization was judged to provide a typology of communication interactions that reflects collaborative learning theory and the role of conversations in the sense-making process. A pilot study of these categories, conducted in June 1999, determined that four types emerge as relevant to this dissertation – social, procedural, expository and cognitive. The study will examine three characteristics of these interaction types (i.e. frequency, quality and duration).

The outcome variables are derived from individual learning literature and media richness. The proposed list includes knowledge acquisition and information interpretation (Huber 1991), perceived media richness (Dennis and Kinney, 1998), and from Burke and Chidambaram, (1999) media social presence, communication interface and communication effectiveness. A two phased methodology is proposed. First case-based field research will be conducted to refine the model. Second, a field-based organizational survey will be conducted, where individuals are using a mixture of collaborative technologies and face to face dialogue in learning based activities (potentially, R&D, innovation or systems development). The proposed model is illustrated as Figure 1. Task related factors, situational/contextual factors and individual factors will be included in the model.

Figure 1



The general propositions of this model are that: 1) mode of communication will impact interaction types, with face to face communication supporting higher frequency, quality and duration, and 2) that variation in the frequency, quality and duration of the interaction types in different media will impact learning outcomes.

An understanding of this phenomenon is important for both managers and academics. Managers will benefit because they will be able to make more informed decisions about acquiring and using communication technology to maximize organizational learning and thus organizational performance. The contribution to academia will come from further refining media richness theory since many studies already suggests that media richness theory in its present form may not hold.

SELECTED REFERENCES

1. Daft R., R. Lengel. 1986. Organizational information requirements, media richness and structural design, *Management Science*, 32 (5), pp. 554-571.
2. Dennis, A, S. Kinney. 1998. Testing media richness theory in the new media: The effects of cues, feedback and task equivocality. *Information Systems Research*, 9 (3), pp. 256-273.
3. Hiltz, R., B. Wellman. 1997. Asynchronous learning networks as a virtual classroom, *Communications of the ACM*, 40 (9), pp. 44-49.
4. Huber, G. 1991. Organizational learning: The contributing process and the literatures, *Organization Science*, 2 (1), pp. 88-113.
5. Leidner, D., S. Jarvenpaa. 1995. The use of information technology to enhance management school education: A theoretical view, *MIS Quarterly*, 19 (3), pp. 265-291.
6. Oliver, R., C. McLoughlin. 1997. Interaction in audiographics teaching and learning environments, *The American Journal of Distance Education*, 11 (1), pp. 34-54.
7. Weick, K., F. Westley. 1996. Organizational learning: Affirming and oxymoron. In *Handbook of Organizational Studies*, eds. S. Clegg, C. Hardy and W. Nord, pp. 440-459. London: Sage Publications.
8. Weick, K. 1979. *The Social Psychology of Organizing*, 2nd edn. Reading, MA: Addison-Wesley.