Viewing Text-Based Group Support Systems

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INTRODUCTION

"[T]he word is not necessarily what it seems...." (Bialik, Revealment and Concealment, 2000, p. 17)

With interdisciplinary approaches leading to new and enriched perspectives, we argue that an encounter between information technology (IT) and sociology will result in a heightened understanding of the problem of textual ambiguity in text-based computer-mediated communication (CMC)[1] in general and in group support systems (GSS) in particular. Such approaches where IT meets sociology have already been taking place in other areas of group research (e.g., see Ahuja & Carley, 1998). "[W]ith the global and technological transformations of the workplace" (Aakhus, 2001, p. 341), as IT and the Internet gain wide acceptance throughout society as well as the global economy (e.g., see Friedman, 2000) and as CMC and computer-supported cooperative work (CSCW) become commonplace, both information systems (IS) scholars and sociologists have increasingly studied the patterns of human behavior in virtual groups. This article[2] is an attempt to advance that effort. Specifically, the purpose of this article is to apply the insights of Georg Simmel—an early and oft-neglected German theorist of sociology working in the late nineteenth and early twentieth centuries—on written communication to text-based GSS, which are interactive computer-based information systems that support and structure group interaction and intellectual teamwork (see also Ackermann & Eden, 1994; Fjermestad, J., 2004; Klein, 2000; Klein & Dologite, 2000; Nunamaker, 1997; Poole & DeSanctis, 1990; Zigurs & Buckland, 1998), "promot[ing] communication, collaboration and coordination among teams of people" (Ahalt, 2000, p. 1159).

BACKGROUND: COMPUTER-MEDIATED COMMUNICATION AND TEXTUAL AMBIGUITY

CMC research has pointed out that, unlike face-to-face (FTF) communication, CMC is distinguished by the absence of contextual (also referred to variously as situational or emotional) cues, which contributes to miscommunication, misunderstanding, misinterpretation, and distortion of the text message (e.g., see Sproull & Kiesler, 1986). In particular, text-based CMC media generate a written message unaccompanied by nonverbal communication. Nonverbal communication refers to "the exchange of information and meaning through facial expressions, gestures, and movements of the body" (Giddens & Duneier, 2000, p. 96; see also Schaefer, 2001, pp. 71-72), which are known as nonverbal cues. Nonverbal communication also includes verbal cues, or voice patterns, such as loudness, pitch, rate, and tone.

According to Easterbrook (1995, p. 6), contextual cues "are used [in FTF communication] for constant feedback and as a signalling mechanism …, indicat[ing] whether the listener is hearing, and understanding." Text-based CMC does not convey the context and emotional nuances that are necessary for an accurate understanding of the text message. For example, by e-mail and other text-based CMC, the pitch and tone of voice, hand motions, facial expressions, and eye movements are absent, often leading to textual ambiguity, which undermines the accuracy of the message.

Research from a variety of disciplines has recognized the significant role that facial expressions, body language, and voice patterns play in giving context to words. By way of illustration, Gottman (1994), investigating facial expression of emotion in married couples, reported that eye rolling by one spouse following comments by the other spouse is an important indicator of a troubled marriage and a strong predictor of divorce. In contrast to FTF interactions, text-based CMC forecloses the facial and vocal expression of emotion.

GROUP SUPPORT SYSTEMS AS LEANER MEDIA

With e-collaboration having assumed a pivotal role in organizations, a widely-used type of text-based CMC media is GSS, which have been used as e-collaboration tools to assist in intellectual teamwork in such activities as problem solving, decision making, idea generation, strategic planning, conflict resolution, and negotiations. GSS have been defined

as "networked, computer-based systems designed to facilitate structured, interactive discussion in a group of people communicating face-to-face or remotely, synchronously or asynchronously" (Davison & Vogel, 2000, p. 3; see also Aiken & Carlisle, 1992; Anson, Fellers, Kelly, & Bostrom, 1996). GSS, which permit "a group of users to collaborate electronically, sharing and updating a common database while allowing for intergroup communications" (Ullrick, 2000, p. 11; see also Hopkins, 1998, p. 96, note 5) are text-based in that "[g]roup member type their contributions into the system, which immediately makes each contribution available to all other participants" (Davison & Vogel, 2000, p. 3). Thus, what participants in a GSS-supported see is the written text without the benefit of contextual cues to serve as an *explication de texte* of sorts.

As GSS is a text-based e-collaboration tool, we suggest that it is worthwhile to analyze GSS in terms of media richness theory, which asserts that different media differ in their ability to transmit information, convey meaning, and change understanding (Daft & Lengel, 1984, 1986; see also Bastress & Harbaugh, 2003; Kahai & Cooper, 2003; Martz & Reddy, 2005; Simon & Peppas, 2004; Stenmark, 2002; Ware, 2000). Media with multiple contextual cues (e.g., body posture, gazes, voice) and rapid feedback are denoted as "rich," while media with few or no contextual cues and without quick feedback are classified as "lean."

Under many, but not all, circumstances (see Kock, 1998), media richness is an important determinant of the effectiveness of groups engaged in intellectual teamwork and collaboration. According to Majchrzak, Rice, King, Malhotra, and Ba (2000, p. 45):

Because of the kind of information they can transmit (nonverbal cues, etc.), some channels (face-to-face, videoconferencing, etc.) are particularly suited for tasks that are unanalyzable, non-routine, equivocal and involve manageable amounts of information. Unanalyzable tasks that teams might perform include strategic direction-setting, brainstorming, and conflict resolution.

FTF communication, from the perspective of media richness theory, is rich because of the multiplicity of nonverbal and verbal cues, which can be used to clarify and interpret the spoken message. By contrast, text-based GSS are generally leaner media to the extent that there is an absence of these multiple contextual/emotional cues. However, it should be noted, that multiple cues need not be absent in all GSS configurations. Kock (1999, p. 14) characterized the difficulty of enriching GSS through added features by noting "the persistent attempts of developers of commercial group support software, through adding features to their products, to achieve the elusive communication richness of face-to-face interaction."

In discussing the characteristics of electronic media, Yamauchi, Yokozawa, Shinohara, and Ishida (2000, p. 330) commented:

[E]lectronic media make it difficult to transmit equivocal messages, whose ambiguity in meaning permits multiple interpretations, because of the limited amount of communicative cues and sluggish interaction .... Face-to-face informal conversations are the richest medium and thus easily accommodate equivocal messages while written messages are more rigid and convey less information.

TEXT-BASED GSS THROUGH THE PRISM OF SIMMELIAN SOCIOLOGY

We now consider GSS, a staple of twenty-first century IT, from the vantage point of early twentieth century Simmelian sociology. Simmel has been "generally considered the most neglected of the founders of modern sociology" (Marshall, 1998, p. 601), although over the past two decades he has received increasing recognition in the law review literature (e.g., see Froomkin, 1996; Nagan & Hammer, 2004; Patterson, 1988; Reisman, 1983; Seul, 2004; Warner, 2005; West-Newman, 2005). We argue that Simmel anticipated media richness theory and the studies on the absence of contextual cues in CMC media, in his analysis on written communication. Contrasting the letter with FTF communication, Simmel (1908/1964, p. 353) asserted:

Individuals in physical proximity give each other more than the mere content of their words. Inasmuch as each of them sees *[emphsasis on original] the other, is immersed in the unverbalizable sphere of his mood, feels a thousand nuances in the tone and rhythm of his utterances, the logical or the intended content of his words gains an enrichment and modification for which the letter offers only very poor analogies. And even these, on the whole, grow only from the memories of direct personal contact between the correspondents.*

This insight represents a basis with which to view and analyze written communication, which, for Simmel, fails to convey the information, predominantly of an emotional nature, embedded in verbal and nonverbal cues. (For a recent paper on Simmel and cyberspace communication, see Bogard, 2000.) The absence or paucity of these contextual cues make letters prone to ambiguity, which, in Simmel's view, is a "sociological categor[y] of first rank" (p. 354). In terms of media richness theory, written communication is a lean communication medium as it is without the interpretive glosses provided by multiple contextual cues and rapid feedback. Simmel, thus, was an advocate of media richness theory *avant la lettre*.