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# Text-Based Group Support Systems: A Simmelian Perspective on E-Collaboration

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## INTRODUCTION

As information technology (IT) and the Internet gain wide acceptance throughout society and as computer-mediated communication (CMC), computer-supported cooperative work (CSCW), and e-collaboration become commonplace, information systems (IS) scholars and sociologists have increasingly studied the patterns of human behavior in virtual groups. This paper is an attempt to advance that effort. Specifically, the purpose of this paper 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 group support systems (GSS). GSS are interactive computer-based information systems that support and structure group interaction and intellectual teamwork (see Klein, 2000, p. 94; Klein & Dologite, 2000, p. 116; see also Huber, Valacich, & Jessup, 1993; Nunamaker, 1997; Poole & DeSanctis, 1990), "promot[ing] communication, collaboration and coordination among teams of people" (Ahalt, 2000, p. 1159).

## AMBIGUITY OF TEXT IN COMPUTER-MEDIATED COMMUNICATION

Studies on CMC have indicated that, unlike face-to-face (FTF) communication, CMC is distinguished by the absence of contextual, or situational, cues, which contributes to miscommunication, misunderstanding, misinterpretation, and distortion of the text message (e.g., see Sproull & Kiesler, 1986; see also Drake, Yuthas, & Dillard, 2000; Hiltz & Turoff, 1993, pp. 76-83; Rainey, 2000). 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 denominated as nonverbal cues. Nonverbal communication also includes verbal cues, or voice patterns, such as loudness, pitch, rate, and tone. Dennis and Kinney (1998, p. 260) neatly captured the importance of multiple verbal and nonverbal contextual cues:

> [V]erbal and nonverbal cues enable the sender to include information beyond the words themselves when the message is transmitted. Verbal and nonverbal cues are often use to emphasize important points, to show doubt or uncertainty, to display acceptance, invoke dominance, and so on (Williams 1977). It is faster and more accurate for most people to send and receive the verbal and nonverbal cues in their native verbal and nonverbal format than to encode them in the text itself (Walther 1992, Walther and Burgoon 1992, Williams 1977). Therefore, when verbal and nonverbal cues are removed, it can take longer and be more difficult to fully understand a message.

Contextual cues "are used [in FTF communication] for constant feedback and as a signalling mechanism …, indicat[ing] whether the listener is hearing, and understanding" (Easterbrook, 1995, p. 6). Dennis and Kinney (1998, p. 260) expressed the vital function of feedback thus: "Feedback is important to the speed and effectiveness of communication because it enables the sender to recognize the extent to which the receiver understands the message and to adjust the message presentation accordingly; a sender could recognize that the receiver understands the message(s), or recognize that the receiver does not understand the message and attempt to clarify it." Text-based CMC, then, does not convey the context and emotional nuances that are necessary for an accurate understanding of the text message. For example, by e-mail, the pitch and tone of voice, hand motions, facial expressions, and eye movements are absent, often leading to textual ambiguity.

## GROUP SUPPORT SYSTEMS AS LOW CONTEXT MEDIA

An increasingly popular form of text-based CMC media are GSS, also referred to as groupware, which have been used to assist intellectual teamwork in such activities as problem solving, decision making, idea generation, conflict resolution, negotiations, and strategic planning (see Adkin, Shearer, Nunamaker, Romero, & Simcox, 1998). 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). 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, p. 3).

In analyzing GSS, it is useful to do so 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 Dennis & Kinney, 1998; Dennis & Valacich, 1999; Ferry, Kydd, & Sawyer, 2001; Kydd & Ferry, 1995; Stenmark, 2002; Whitworth, Gallupe, & McQueen, 2001). 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."

In many situations, but not all (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

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unanalyzable, non-routine, equivocal and involve manageable amounts of information. Unanalyzable tasks that teams might perform include strategic direction-setting, brainstorming, and conflict resolution."

From the perspective of media richness theory, FTF communication 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 a lack of contextual/emotional cues. Same-time same-place GSS sessions, however, can be enriched by inclusion of elements of FTF communication (Shirani, Tafti, & Affisco, 1999), although enriching GSS through added software features may be difficult (Kock, 1999, p. 14).

In general, then, GSS can only provide low context communication. According to Massey, Montoya-Weiss, Hung, and Ramesh (2001, p. 84), contextuality refers to "the amount of additional information required to make decisions versus the straight facts." GSS are low context because of the absence of facial and vocal expressions of emotions, which does not allow the recipient of a GSS message to go beyond the words in the text for an understanding of the text and which does not allow the sender of a GSS message to receive feedback other than a return text-based message. Thus, both the recipient and the sender are denied access to emotional nuances that accompany the written word, enabling them to get the facts straight but to misinterpret the context in which these facts exist. The results are bad decisions based on greatly imperfect information.

The importance of interpreting words in light of facial and vocal expressions of emotion has been confirmed in various disparate disciplines. (For recent research on the facial expression of emotion, see Coan, Allen, and Harmon-Jones, 2001; Gottman, Coan, Carrere, & Swanson (1998); Gottman, Levenson, and Woodin, 2001; see also Ekman, 1993; Ekman, Levenson, and Friesen, 1983; Izard, 1994; Levenson, Ekman, and Friesen, 1990). For example, in a study on marital interaction, Gottman (1994, 1995) found that one spouse's rolling of the eyes — a type of negative body language signifying contempt — in reaction to the other spouse's comments is a strong predictor of divorce (see also Gottman & Silver, 1994; Parker-Pope, 2002). Other nonverbal insulting physical gestures that suggest marital disharmony are wrinkling the nose and raising (curling) the upper lip (Gottman, 1994; see also Givens/Center for Nonverbal Studies, 2001; University of Utah Medical School, 2000). Eye-rolling, nose-wrinkling, and upper lip-raising can be regarded as forms of rapid feedback that indicate unverbalized negative emotions. Such negative feedback, as well as positive feedback (e.g., smiles, nods of approval), is generally available only in FTF interactions. In CMC media that are text-based, such as GSS, such crucial — and almost immediate — feedback is absent. Thus, text-based GSS are, in essence, impoverished media.

## A PLACE FOR SIMMEL IN CONTEMPORARY GSS SCHOLARSHIP

Simmel, "generally considered the most neglected of the founders of modern sociology" (Marshall, 1998, p. 601), 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* [italics in 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.

For Simmel, then, written communication fails to convey the information, predominantly of an emotional nature, embedded in verbal and nonverbal cues. 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.

The legal scholar Jeffrey Rosen (2000), investigating privacy in the workplace, applied Simmel's thought on letters to e-mail, where verbal and nonverbal cues are not available to supply emotional background to the text message, thus making the text message highly susceptible to being "wrenched out of context" (p. 76). According to Rosen, "e-mail shares the informality of a conversation, but like a letter, lacks the contextual accompaniments that provide clues to meaning in face-to-face encounters" (p. 76). Employing a Simmelian analysis, Rosen (p. 75) argued:

> Messages sent by e-mail are often far more impetuous than face-to-face conversations, where "situational cues," such as body language and facial expressions, from the person with whom we are conversing temper what we say. Because e-mail messages are often dashed off quickly and sent immediately, without the opportunity for second thoughts that ordinary mail provides, they may, when wrenched out of context, provide an inaccurate window on someone's emotions at any particular moment.

Building on the work of Simmel and Rosen, we extend the Simmelian analysis to text-based GSS, which we argue is, in many respects, similar to e-mail. Synchronous (same time) GSS messages are generally "dashed off quickly and sent immediately" without much deliberation. Even asynchronous (different times) GSS messages are often composed quickly without careful crafting. Moreover, the text messages in GSS, both synchronous and asynchronous, are without "contextual accompaniments" (Rosen, 2000, p. 75) that convey the emotional nuance of the text and clarify its meaning. As in letters, "a lack of all those accompaniments — sound of voice, tone, gesture, facial expression" (Simmel, 1908/1964, p. 354) are a source of ambiguity in text-based GSS messages.

## CONCLUSION

A Simmelian approach to written communication can contribute to a better understanding of the limitations of text-based GSS. The challenge to scholars and practitioners of IS is to develop pragmatic solutions, including more extensive use of emoticons, also referred to as smileys or graphic accents — "glyph[s] used in text-based environments … to indicate an emotional state in order to prevent misunderstandings (Smith, 1999, p. 161, note 11) — so as to avoid or reduce textual ambiguity in GSS messages.

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