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Computer-Mediated Communication:

Impersonal, Interpersonal, and Hyperpersonal Interaction[1]

While computer-mediated communication use and research are proliferating rapidly, findings offer contrasting images regarding the interpersonal character of this technology. Research trends over the history of these media are reviewed with observations across trends suggested so as to provide integrative principles with which to apply media to different circumstances. First, the notion that the media reduce personal influences—their impersonal effects—is reviewed. Newer theories and research are noted explaining normative "interpersonal" uses of the media. From this vantage point, recognizing that impersonal communication is sometimes advantageous, strategies for the intentional depersonalization of media use are inferred, with implications for Group Decision Support Systems effects. Additionally, recognizing that media sometimes facilitate communication that surpasses normal interpersonal levels, a new perspective on "hyperpersonal" communication is introduced. Subprocesses are discussed pertaining to receivers, senders, channels, and feedback elements in computer-mediated communication that may enhance impressions and interpersonal relations.

When are the effects of computer-mediated communication (CMC) a help or a hindrance? How can the same group of technologies be described as a limitation and a liberation? One line of theory and research on CMC began with an assumption that "many management problems are difficult and complex; hence formal information is not rich enough to convey adequate insight and understanding. Personal sources are more insightful" (Daft & Lengel, 1984, p. 201). Thus began one research trend defining CMC, a form of written communication, as too "lean" for many *task-related* communications.

Another line of theory and research suggests that computer-mediated messages are inappropriate and/or ineffective for exchanges in which *inter-*

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personal exchange is needed because the medium provides "scant social information" (Dubrovsky, Kiesler, & Sethna, 1991, p. 119). Looking at these perspectives side by side, one must ask, if it is not good for tasks and not good for socializing, then just what is CMC good for and why would anyone use it at all? Contrast this question with a 1991 report that there are 19 million electronic mail (e-mail) addresses in public and private systems in the United States (Electronic Mail Association, 1991) with 20 to 30 million estimated worldwide in 1994 (Negroponte, 1995); there are more than 45,000 public electronic bulletin boards in the United States (Rickard, 1993), and annually "the Internet has been doubling in size since 1986" (Quarterman & Carl-Mitchell, 1993, p. 34). Contrary to its beginnings, CMC is not being used to transmit only simple information between people. If you have used it much, you already know better. Yet the nature of communication through computer networks is still debated, tested, and not very well understood when one examines the literature on the subject.

Although novice users and the uninitiated still seem to suspect that CMC may be impersonal, growing numbers of reports are appearing that reflect more personal CMC interaction, sometimes *just as* personal as face-to-face (FtF) interaction, or even describing interaction that surpasses FtF in some interpersonal aspects. It is these dynamics that undergird phenomena such as "on-line friendships" and "virtual communities" (see Jones, 1995). And bookstore shelves offer an even more extreme view of CMC with volumes such as *Love Online* (Phlegar, 1995) or *Love Bytes: The Online Dating Handbook* (Fox, 1995). Perhaps the medium has no consistent effects—or has no effects at all—and different conditions surrounding CMC use lead to these contrasting results. Alternatively, some common elements may be identified that play a part in all these outcomes.

In the following, I offer a reconceptualization of the work on CMC and its interpersonal effects in two general directions. First, an effort is made to integrate theories and research findings pertaining to *impersonal* and *interpersonal* interactions in CMC, not by dismissing one in favor of the other but rather by specifying some conditions that favor each type of outcome, either of which may be desirable and useful in certain contexts. In so doing, a shift in perspective is offered: Through the specification of factors conducive to interpersonal CMC, methods for purposefully impersonalizing interaction via CMC are suggested. This perspective is also useful for conceptualizing the structure and effects of Group Decision Support Systems (GDSS) as configurations that achieve useful group-level outcomes specifically by dampening interpersonal communication.

Second, a new perspective is offered regarding the heightened levels of intimacy, solidarity, and liking via CMC, which have been observed and

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documented in several empirical and anecdotal accounts. Combinations of media attributes, social phenomena, and social-psychological processes may lead CMC to become "hyperpersonal," that is, to exceed FtF interpersonal communication. These combinations and effects apply to group and dyadic interactions alike in both personal and professional contexts. These effects are illuminated by examining processes related to the interactions of communication media with source, receiver, channel, and feedback processes, which extend our abilities to perform interpersonal functions in heightened or augmented ways via CMC.

From Impersonal to Interpersonal and Back

Impersonal CMC: Getting the Job Done

Early research on CMC led to its reputation as fostering impersonal interaction, and an examination of the history and development of CMC helps illustrate how and why. CMC emerged as an unintended byproduct of linking large computers to one another for security and information redundancy. In addition to the transmission of data, operators found they could send simple messages to one another. From there, the notion grew that CMC could be used to coordinate emergency tasks among geographically dispersed individuals (see Hiltz & Turoff, 1978; Rapaport, 1991; Rheingold, 1993), and CMC grew from simple relay systems into planned applications for group communication. With this development, questions arose as to whether CMC could replace travel to meetings by group members and whether CMC might provide meetings as effective as, or even more effective, than FtF meetings (Turoff, 1991).

After finding that coordination *could* be achieved, researchers began to examine the effectiveness and the social character of these interactions. Studies focused both on users' on-line behavior and on prospective users' anticipatory perceptions regarding the new medium. Numerous empirical studies in the CMC literature demonstrated that the use of e-mail and computer conferencing reduced interpersonal affect and group solidarity. Experiments with zero-history groups working toward resolution on some task in a fixed period of time showed that CMC was more task oriented than were FtF meetings. CMC was significantly lower than FtF on certain social categories of conversation, leading to conclusions about the task-oriented nature of CMC. CMC was significantly higher than FtF on certain types of hostile or profane speech acts, leading to characterizations of CMC as uninhibited and depersonalized. (For recent reviews of such findings, see

Garton & Wellman, 1995; Walther, 1994.) Perceptual research, too, revealed ratings of CMC as less suitable for personal interactions than multichannel media (see Rice, 1984, 1993; Rice & Shook, 1990).

WHY IS NONINTERPERSONAL GOOD?

Despite a tendency in our literature to value "friendly" or "intimate" interaction highly (see Parks, 1982), there are times when less interpersonal or socioemotional communication is beneficial. In this sense, if CMC fostered less personal interaction than did unmediated communication, it might be advantageous for those dyadic or group encounters in which more impersonal interaction is valued. At times, the greater task orientation of CMC that emerged in several studies was held as a potential boon of the medium. According to Dubrovsky (1985), "computer conferencing . . . promotes rationality by providing essential discipline (task orientation, coordination, equality of participation, etc.) by filtering out affective components of communication and emphasizing the content, minimizing social influences (influence of status, interpersonal 'noise,' and so on)" (p. 381).

In the area of group decision making, reduced socioemotional communication and increased task orientation can enhance group work. Reformulations of Steiner's (1972) notions of group effectiveness became the paradigmatic theme for the optimistic evaluation of impersonal CMC as an aid to group decision making: A group's actual effectiveness equals its potential effectiveness minus process losses plus process gains (DeSanctis & Gallupe, 1987; Huber, 1994; Valacich, Dennis, & Nunamaker, 1991). Process gains are those attributes of group activity that make groups superior to individual decision makers. Process losses include aspects of group interaction that detract from task effectiveness, including domination by a subset of the group, inhibition among lower status members, and conformity pressures, the effects of which might lead to insufficient exploration of problems and solution alternatives. Take away these interpersonal and social hindrances through "sociotechnical" arrangements, and the resulting impersonal orientation to ideas via CMC increases process effectiveness.

In addition to reducing barriers to effectiveness by virtue of task focus, decreased personalization has the simple effect of leaving a greater proportion of a group's work time for its instrumental task. As socioemotional concerns such as conflict or relationship management take time and effort away from task resolution, any mechanism that reduces the need or proclivity to expend effort in these directions should enhance the efficiency of a group's efforts. According to Phillips and Santoro (1989), computerized com-

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munication steers users away "from consideration of irrelevant interpersonal and theoretical issues by focusing attention on the process and content of problem-solving discussion" (p. 152). Indeed, empirical research by Smolensky, Carmody, and Halcomb (1990) confirmed an inverse relationship between the frequency of personal remarks and decision-making success in CMC: "From a quantitative perspective, people simply don't accomplish as much work on a task when they are generating extraneous conversation over the communication medium" (p. 269).

Finally, numerous studies have shown that CMC discussions feature more equal member participation than do comparable FtF discussions (for review, see Sproull & Kiesler, 1991). Whereas communicators with greater status or social power maintain a larger proportion of floor time in FtF conversations, participation equality has emerged in many investigations using CMC. When originally presented, this effect was also argued to be an inherent feature of CMC interaction that had the capability to "democratize" communication (Kiesler, Siegel, & McGuire, 1984). As will be shown later, the inherence of all these impersonalizing effects has been doubted upon later examination. For some time, though, and in some corners still, CMC is considered beneficial precisely because of its capability to render impersonal communication outcomes, an outgrowth of early developments and uses of networked computing.

WHY MIGHT CMC BE INHERENTLY IMPERSONAL?

Theories that emerged to explain these findings contended that impersonality was an effect of the lack of nonverbal cues and, at times, the reduced interactivity of e-mail and computer conferencing systems. The absence of these capacities, which convey personal and emotional information in FtF conversations, was said to affect users' interpersonal impression formation and their perception of the communication context, and to constrain users' selection and interpretation of messages. Social presence theory (Short, Williams, & Christie, 1976) predicts that the fewer channels or codes available within a medium, the less attention that is paid by the user to the presence of other social participants in an interaction. As social presence declines, messages are more impersonal (see Hiltz, Johnson, & Turoff, 1986; Rice, 1984; Steinfield, 1986). Sproull and Kiesler (1986) claim that CMC reduces "social context cues"—aspects of physical environment and nonverbal hierarchical status cues (Siegel, Dubrovsky, Kiesler, & McGuire, 1986)— the absence of which is said to deter interpersonal impressions. According to Kiesler (1986), "without nonverbal tools, a sender cannot easily alter the

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mood of a message, communicate a sense of individuality, or exercise domi-
nance or charisma. . . . Communicators feel a greater sense of anonymity and
detect less individuality in others" (p. 48; see also Kiesler et al., 1984).
Information richness theory (Daft & Lengel, 1984, 1986) proposes that media
vary in richness according to the number of cue systems they convey, the
immediacy of feedback, and the capacity for natural language. Rich media
are better suited to highly equivocal (and, later, interpersonally demanding)
tasks, whereas lean media are more efficient for unequivocal tasks. The
appropriate match of medium and task was related to greater managerial
effectiveness (Daft, Lengel, & Trevino, 1987).

These kinds of approaches have been called the "cues-filtered-out" per-
spective by Culnan and Markus (1987). From this perspective, all CMC would
be expected to be less socially oriented and less personal than FtF commu-
nication. As CMC necessarily and always constrains the number of cues,
communication should always be impersonal when it is computer mediated,
according to this perspective. As already mentioned, there are significant
research results that support these views. Rice and Love (1987) summarized
a review of the literature stating that "CMC, because of its lack of audio or
video cues, will be perceived as impersonal and lacking in normative rein-
forcement, so there will be less socioemotional (SE) content exchanged"
(p. 88). But we know that is not always the case.

ALTERNATIVE FINDINGS

It has become clear over the years as research has accumulated that CMC is
not always as fixed and stark as early experiments indicated. Counterexam-
ples abound—primarily in field research where interaction time was not
constrained—in the realms of managerial communication and effectiveness
using e-mail (Markus, 1994); friendships and romances in real-time Internet
Relay Chat (Reid, 1991), in commercial on-line services (Van Gelder, 1985),
in multi-user text-based virtual reality systems (replete with virtual wed-
dings; Reid, 1995), and in asynchronous Usenet newsgroups (Parks & Floyd,
1995); and emotionally rewarding exchanges in a variety of other on-line
social support communities (e.g., Egdorf & Rahoi, 1994; Rheingold, 1993).
Quantitative analyses have found a great deal of social interaction in some
computer conferences and bulletin board systems (see for review, Walther,
Anderson, & Park, 1994). Direct attempts to replicate or extend the cues-
filtered-out approaches have met with nonsignificant results for information
richness hypotheses (Kinney & Dennis, 1994; Kinney & Watson, 1992) or
effects counter to hypotheses from social presence (e.g., Foulger, 1990) and

social context cues predictions (e.g., Weisband, 1994; Weisband, Schneider, & Connolly, 1995).

Despite these contrasts, however, the cues-filtered-out theories reappear in reports and reviews (e.g., Garton & Wellman, 1995; McGrath & Hollingshead, 1993) along with both old (e.g., Sproull & Kiesler, 1995) and new data-analytic research supporting them (e.g., Straus & McGrath, 1994).

Alternatively, some recent writings have summarily dismissed the cues-filtered-out theories and the results behind them as research artifacts. For instance, Baym (1995), writing on the development of on-line communities, states flatly that the nonsocial character of CMC use described in the experiments of the mid-1980s "was not the case then and is certainly not the case now" (p. 160). There are problems, however, with such dismissals. According to Walther (1994), theorists with competing foci have suggested that the cues-filtered-out theories

> are a dead horse no longer to be beaten (Fulk, Schmitz, & Schwarz, 1992; Steinfield, 1992). Unfortunately, this rejection is accompanied by references to new theories and evidence about media *choice* rather than media *effects*. . . . Such critiques do not address actual channel effects on communication behavior past the point of selection. More critically, they dismiss previous media-effects theories without dealing squarely with the empirical between-condition communication differences reported in early experimental research. (p. 476)

In other words, many who reject the cues-filtered-out explanations have remained silent on how to account for the experimental results that were obtained in those experiments (for an exception, see Spears & Lea, 1992); in exorcising the external validity of the work, they have ignored the question of internal validity,[2] throwing the empirical baby out with the theoretical bathwater and ignoring lessons that might yet be instructive. The question remaining from this silent debate is why CMC appeared impersonal in some research and not elsewhere and what accounts for the difference. It raises the issue of whether or not we can predict and control these impersonal outcomes *within* CMC at such times as would be useful.

Even early advocates of social presence theory sought intervening variables that might modify interpersonal effects. Both Hiltz, Johnson, and Agle (1978) and Rice and Love (1987) hypothesized that users learn to adapt their verbal behavior to the restrictions of the textual medium; over time, such interaction may adapt to more customary interpersonal levels. One way to assess the effects of time is to examine field settings in which CMC use is not restricted to the time limits imposed in typical small-group experiments. Rice and Love (1987) observed and coded electronic bulletin board exchanges over

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several months. Their study found greater amounts of socioemotional versus task-related content in this longitudinal framework, although, contrary to hypothesis, the ratio did not increase as a function of time. Clearly, the medium alone is not an adequate predictor of interpersonal tone, but the precise influence or affordances of time remained unexplained.

Interpersonal CMC: Reaching Out to "Touch" Someone

A SOCIAL INFORMATION PROCESSING PERSPECTIVE

A few years ago, another framework advanced propositions alternative to the cues-filtered-out approach. It was intended to explain the disparities among previous findings as well as to offer explanations about what occurs over time among CMC users that predicts the development of more interpersonal qualities. This approach takes a social information processing perspective based on principles in social cognition and interpersonal relationship development (Walther, 1992a). The model assumes that communicators in CMC, like other communicators, are driven to develop social relationships. To do so, previously unfamiliar users become acquainted with others by forming simple impressions through textually conveyed information. Based on these impressions, they test their assumptions about others over time through knowledge-generating strategies, the results of which accumulate in refined interpersonal knowledge and stimulate changes in relational communication among CMC users. Rather than the fixed relational qualities imputed to CMC in previous theories, the social information processing model predicts normal but temporally retarded interpersonal development.

The key difference between these processes in CMC and FtF communication has to do not with the *amount* of social information exchanged but with the *rate* of social information exchange. This framework acknowledges that there is less social information per message in CMC because of the absence of nonverbal cues. It also recognizes the potential for users to adapt to the linguistic code as the sole channel for relational communication and refers to a number of verbal strategies in the impression formation and interpersonal interaction literature known to affect interpersonal attributions. However, given that all this social information, as well as all instrumental information, is traveling through one code system—a system in which even verbal messages travel slower than they do in oral speech—it follows that the expression and deciphering of these cues is retarded in CMC relative to FtF communication. Accrual of interpersonal effects is expected to be slower in time and develop in proportion to the accumulation of message exchanges.

The argument was not necessarily that CMC participants will get more friendly; not all FtF relationships do, either. Essentially, however, the view of this perspective is that as goes FtF, so goes CMC, given the opportunity for message exchange and accompanying relational development.

From this perspective, one-time-only, time-limited CMC groups, like those used in many early CMC experiments, are bound to appear more task oriented than are parallel FtF groups. Because sociable CMC develops more slowly, a moderate time interval for an FtF group may be too short for CMC partners to manage their task concerns, let alone their relational concerns. As Kelly and McGrath (1985) found in research on nonmediated groups, when time is short, communication is significantly less interpersonally oriented. With this in mind, then, it is no wonder that time-limited experimental CMC groups appear impersonal and that longitudinal or cross-sectional examinations of "field" uses appear warmer. The rate factor interacts with the time factor in CMC and FtF discussions. In this way, the issue of information processing rate helps clarify previously conflicting findings.

INVESTIGATIONS

The evidence that has been gathered to test this perspective suggests some support and some possible modifications. One study (Walther, 1993b) examined impression development among CMC group members and FtF counterparts. Hypotheses predicted that FtF communicators would develop impressions quickly, whereas CMC communicators' interpersonal impressions would (a) be less developed than those in FtF initially, (b) develop more gradually, and (c) finally come to equal those in FtF groups in their level of development. Using an original measure of impression development (Walther, 1993a), participants met in three FtF meetings or used asynchronous computer conferencing over 6 weeks. Hypotheses generally were confirmed. Initial CMC/FtF differences were obtained as predicted, but CMC impressions developed in a positive linear trend.

To test relational development in FtF and CMC over time, Walther and Burgoon (1992) employed repeated administration of the relational communication questionnaire (Burgoon & Hale, 1987) with 16 FtF groups and 16 CMC groups over time. Results revealed (a) that there were very few initial differences between conditions, (b) that participants in both conditions increased over time to similarly affiliative levels of relational communication, and (c) that few differences due to communication conditions occurred except that (d) computer-mediated groups were actually more socially oriented than were FtF groups. Although these results addressed the predicted conver-

gence between media on relational communication over time, they were troubled by the failure to find marked differences between conditions at the first measurement point. After all, longitudinal groups that have not yet developed much history should resemble one-time-only groups as far as their interpersonal development is concerned, with CMC less social than FtF groups at least at first.

Yet, longitudinal groups have something that one-shot groups do not have: the anticipation of future interaction. Research on unmediated interaction suggests that the anticipation of future interaction prompts communicators to seek more information about one another, to act more friendly, and to cooperate in negotiations—in essence, to enact more relationally positive communication (see for review, Kellermann & Reynolds, 1990). Some antici-pation of future encounters seems to be present in much FtF interaction but not necessarily in CMC, where invisible partners might never recognize each other again. The suspicion arose that it may be anticipated future interaction that accounts for the differences between CMC and FtF behavior in past research (Walther, 1992b).

Another experiment tested just this contingency. In this research (Walther, 1994), subjects were assigned to meet via FtF meetings or computer conferencing in groups of three. Groups were led to expect that they would work on three tasks over time. Half the groups were told they would work with the same people on all three tasks, whereas the other half were told they would work with different partners each time. After one task, results showed that the assignment of long-term versus short-term partnerships made a larger difference to computer conferencing partners than it did to FtF partners on the degree of anticipated future interaction they experienced. Further analyses revealed that, once the variation due to anticipation was accounted for, there was no difference between computer conferencing and FtF interaction on the immediacy, similarity, composure, and receptivity of the group members. The results of this experiment indicate that the imper-sonal effects attributed to CMC in many early, one-shot experiments are not direct effects of the communication media. Rather, CMC acts as a moderator by which participants may come to expect or not to expect ongoing interaction with their partners. This anticipation, in turn, shapes their interpersonal interaction.

Finally, a meta-analysis examined previous CMC findings for time effects (Walther et al., 1994). This procedure offered a way to substantiate the social information processing theory further because the theory was intended to account for discrepancies between field and experimental findings in prior research. The literature review yielded studies with CMC/FtF comparisons as well as within-CMC designs. Ratios of socially oriented to task-oriented

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communication were computed across studies, and scores were compared on the basis of whether communication time was limited or not. The time limitation variable proved a significant effect in this retroactive analysis.

In all, these studies present a very resilient view of humans communicating: CMC participants in dyads and groups—even those who have never met before—use cues available to them to manage relational development in normal (or perhaps supernormal) fashion. The circumstances of their media may add some hitherto unexplored dimensions but not an enduring dampening of interpersonal affect. With this addition to our knowledge of the relational dynamics of CMC, we may revisit the question of impersonal versus interpersonal from a new, even strategic perspective. Rejecting the notion that CMC is *inherently* impersonal, we may focus on the critical factors that *interact* with CMC to foster impersonality.

Lessons Learned

Reviewing the work on impersonal and interpersonal CMC, some instruction may be inferred, especially for group interaction. To foster normatively *interpersonal* interactions, it appears, CMC partners may be left with adequate access and time to develop. Groups so equipped even develop norms of conduct, through explicit discussion and sanctions, both in professional and recreational settings (see, respectively, Finholt & Sproull; McLaughlin, Osborne, & Smith, 1995). There are times, however, when it is desirable to foster *impersonal* interaction: to facilitate brainstorming, to encourage equal participation for democratization, or for criticism blind to status. In these circumstances, CMC's ability to bring together members' input across time and space alone will not be sufficient. However, sociotechnical circumstances may be contrived, including reduced periods for discussion, anonymous interaction, obviated floor-sharing or turn-taking procedures, and ad hoc teams with no anticipation of future interaction, all of which seem to contribute to a stronger task focus and potentially more productive "work." It is not clear what combination of these factors will be sufficient to achieve strategic impersonality; GDSS sessions often combine them all.

GROUP DECISION SUPPORT SYSTEMS AS STRATEGICALLY IMPERSONAL

The historical view that CMC's task focus facilitates group decision making continues to manifest itself in certain CMC applications' design and usage. Complex hardware and software combinations known as Group Decision Support Systems frequently offer technological interventions in group com-

munication processes (see, e.g., Dennis, George, Jessup, Nunamaker, & Vogel, 1988). In the present framework, these impositions foster even greater "impersonalization" for group interaction. Typically, GDSS are run with all group members in a meeting room where participants type comments via computer terminals and comments are redisplayed on others' screens. These comments are anonymous in GDSS interaction. As a result of anonymity, participants experience more freedom to verbalize (Jessup, Connolly, & Galegher, 1990) and low-status members, in particular, may criticize others' ideas without fear of reprisal (Valacich, Dennis, & Nunamaker, 1992). Although there is thus greater conflict, it is substantive rather than inter-personal conflict, and decision making may be enhanced (Watson, DeSanctis, & Poole, 1988). One experiment using a GDSS with anonymity versus identi-fication and a critical versus supportive confederate found that the same condition in which the conversations were least interpersonally satisfying (anonymous/critical) was the very one in which the best solutions were offered (Connolly, Jessup, & Valacich, 1990). As Weisband (1994) reviews, "This emphasis on improving the quality of meeting outcomes through the anonymous inputting of ideas has been and continues to be a main focus of the GDSS research on electronic brainstorming" (p. 285).

GDSS also offer simultaneous interaction, and so another interpersonally related phenomenon—the negotiation of conversational turns and turn taking—is unnecessary. Group members all may type their comments into a central list at the same time. The amount of floor time a speaker has is not constrained by sharing, and a group can generate far more comments in much less time than it could in FtF meetings (Valacich et al., 1992).

The interpersonal influence processes that accompany idea evaluation in FtF meetings are also mitigated, as arguments and preferences are uncon-nected from their originators. Additionally, whereas FtF groups may face strong social pressures to reach consensus or compromise, in GDSS numeri-cal tools often obviate such pressures by allowing the anonymous majority to rule by plurality; advanced GDSS feature technological support for group voting, rating, ranking, and other decision-making tools (see Kraemer & Pinsonneault, 1990). One detailed investigation of GDSS processes by Sam-bamurthy and Poole (1992), for example, compared groups using relatively simple yet anonymous electronic communication support to groups with more advanced but more conversationally restrictive electronic, anonymous cross-rating and analysis tools; groups in both were compared to FtF groups as well, and all were given no time restriction. Whereas the participants' premeeting opinions showed the potential for group conflict in all conditions, the groups using the more complex electronic tools presented the greatest diversity of ideas and had the greatest degree of opposition and confronta-

tiveness during interaction. The groups also used the tools to reach greater consensus. No differences in satisfaction were obtained. Although systems such as these have never been described as fostering noninterpersonal communication, Whitaker (1994), under the wistful heading "So near, yet so far: Remote conferencing in a single room" (p. 248), describes the use of GDSS as manifesting a "blinder" effect,

> shutting off participants visually and interactionally from their collaborators. Contributing "ideas" and subsequent "commenting" are done textually (through their individual keyboards) rather than by means available "naturally" in their shared physical space (e.g., verbally; gesturally). These activities are conducted through specific software modules . . . further fragmenting interactivity along lines dictated by the IT [information technology] support. (p. 249)

Although any of these impersonalizing strategies in GDSS or other CMC might be helpful for groups, they may also offer drawbacks not only to social satisfaction but to certain task outcomes as well.

PROBLEMS IN CONSENSUS DEVELOPMENT

Although the impetus for the application and research of impersonal CMC held that group decision making might improve, the bulk of empirical research has shown mixed results for CMC in this area. When groups are given restricted time periods, CMC groups reach decisions less often than do FtF groups (Hiltz et al., 1978). Research has found that CMC groups take longer to reach decisions and that more CMC than FtF groups fail to achieve consensus at all within allotted time periods (Hiltz et al., 1986; Siegel et al., 1986; see also Rice, 1984). Some researchers have blamed this outcome on the very process that was hoped to lead to positive results, a process that seemed to boomerang: Failure to achieve consensus was attributed to the lack of personal and socioemotional messages group members summoned in CMC. With fewer overall messages being exchanged and fewer statements of agreement (Hiltz et al., 1986; Siegel et al., 1986), difficulty organizing, and lack of leadership emergence (Rice, 1984), the stark interactions of unstructured CMC proved too meager for groups to be able to reach their desired goals, it was said—goals that apparently depend on greater social dynamics than had been realized.

As with the need for expanded time frames to achieve normal interpersonal relations, the time-by-rate problems articulated in the social information processing perspective may also pertain to leadership, social influence,

and agreement processes. Group CMC experiments that allowed participants to work until consensus was achieved have found that it takes four to five times longer on the clock, but equivalent numbers of messages are exchanged as in FtF groups. Decision-making groups that use CMC long enough to reach consensus also seem to develop interpersonally. Even using GDSS but without restriction and over time, as Chidambaram, Bostrom, and Wynne (1991) found, group cohesiveness and conflict handling improve. However, longer term GDSS interactions also lose equality of participation and influence (Weisband et al., 1995). And whereas CMC and GDSS seem to improve idea generation quite well, when groups do reach consensus, meager differences, if any, are found in the quality of decisions made by wholly mediated groups compared to nonmediated groups (Archer, 1990; Hiltz, Turoff, & Johnson, 1989; McLeod, 1992; Pinsonneault & Kraemer, 1990). Perhaps due to the same anonymity that leads to productivity in GDSS, Dennis (1993) found that participants did not *remember* as large a proportion of their ideas during idea selection compared to the case of FtF processes. Unmitigated impersonality in CMC seems to be a double-edged sword.

Future work that may follow from this impersonal/interpersonal perspective might examine which aspects of groups' activities are better suited to which type of communication. For instance, Olaniran (1994) found that decision quality was highest in a two-phase arrangement using anonymous CMC for brainstorming but FtF interaction for evaluation and consensus reaching. Like non-electronic-structured group activities that increase task focus (see Delbecq, Van de Ven, & Gustafson, 1975), this combination makes more impersonal the first phase and more interpersonal the second phase. Perhaps future work will find this impersonal/personal framework useful for decisions about system planning, design, and adoption as well.

Thus CMC, which was hoped to be a boon in small group communication, rendered contradictory effects. Although CMC was expected to be impersonal, it was only sometimes—when restricted or sociotechnically contrived. At other times, work groups and specialist communities found that CMC offered a way to manage interpersonal functions acceptably or exceedingly well, albeit at a relatively slower rate. While these research results accumulated, more and more users adopted CMC. One would not expect this trend were the medium incapable of rewarding communication. Indeed, in CMC work groups, some Usenet groups, and bulletin board chat spaces, among the physically challenged and the emotionally wrought, as well as your average "Internaut," reports of exceedingly intimate interactions now abound. Hyperbolic messages, excessively affectionate responses, and the relations they form are reflected sometimes as anecdotes and sometimes through scientific analysis. The following section offers tentative explanations about how these

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effects may come into being, once again focusing on the interactions of system capabilities and human motivations.

Hyperpersonal CMC: Social Interaction and Work Groups

There are several instances in which CMC has surpassed the level of affection and emotion of parallel FtF interaction. Such phenomena not only take place in electronic communication systems devoted primarily to social or "recreational" interaction (see Reid, 1991) such as bulletin boards, games, or chat systems, but also in decision-making groups and business settings. A useful label for this phenomenon is "hyperpersonal communication"—CMC that is more socially desirable than we tend to experience in parallel FtF interaction.[3] I begin with some illustrations and introduce some theoretical approaches that may help us understand parts of the phenomenon. These approaches speak, conventionally enough, to four different but related elements of the communication process: receivers, senders, characteristics of the channel, and feedback processes. Because the formation of this approach is informed by disparate theories, it is best considered tentative. The examples and theories illustrate different parts of the communication process, and it is not yet clear which specific processes are necessary or sufficient for the hyperpersonal effect to be obtained. Taken together, though, it presents a coherent and reasoned approach, and related processes that may provide a new and more comprehensive perspective with which to explain CMC effects.

The first example comes from a reanalysis of the communication recorded in the first longitudinal test of social information processing theory. The reanalysis, prompted by methodological concerns, used outside coders who watched videotapes of the FtF groups or read transcripts of the CMC groups and rated group members' relational communication (Walther, 1995b). Surprisingly, CMC groups were rated significantly *more* positive than their FtF counterparts on several dimensions of intimacy as well as on social (vs. task) orientation; the CMC groups outperformed, interpersonally speaking, the FtF groups. Previous theories do not account for the hyperpersonal tone of CMC groups. Some alternative approaches begin to shed light on these phenomena.

The Receiver: Idealized Perception

It seems that under certain common circumstances, CMC message receivers inflate the perceptions they form about their partners. The most useful theoretical and empirical approach to this process is found in social identity-deindividuation (SIDE) theory (although it describes normal rather than

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inflated impressions). Lea and Spears (1992; Spears & Lea, 1992) predict that, in the absence of FtF cues and prior personal knowledge about one's partners, whatever subtle social context cues or personality cues do appear in CMC take on particularly great value. CMC partners engage in an "overattribution" process; they build stereotypical impressions of their partners without qualifying the strength of such impressions in light of the meager information—misspellings, typographical errors, or excessive punctuation—on which they are built. This overreliance on minimal cues is more pronounced when participants have no physical exposure to one another, as in CMC; they are "deindividuated."

The SIDE model does not predict uniformly positive or negative interpersonal assessments in all cases, and its strength is in its ability to forecast which is likely to occur. The model predicts an interaction between the salience of a group relationship (vs. a salient individual identity) and the copresence (vs. absence) of one's partners on interpersonal impressions. When participants are led to perceive that they are in a group relationship, each tends to hold salient a "social self-categorization" rather than an "individual self-categorization." This cognizance leads to attributions of greater similarity and liking with one's partners. When social partners are not proximal, the salience of group membership becomes stronger yet. Under these conditions, paralinguistic cues (on which receivers rely so strongly) are said to reduce uncertainty and are perceived as *positive* deviations, leading to positive evaluations. Alternately, when one is not cognizant of a group relationship and is geographically separate, paralanguage works the opposite way, leading to judgments of users as less competent and less desirable. These outcomes occur, again, when participants are separated using minimal-cue channels. When participants are proximal to their partners, the influence of the social versus individual self-categorization is attenuated.

Indeed, many organizational CMC users find themselves in just such circumstances as those described by Lea and Spears (1992). To use e-mail with another organization member implies physical isolation yet some community by virtue of shared organizational identity (see, e.g., Markus, 1994). Although this may be true of CMC users who connect with each other out of requirement, it becomes more the case for discretionary CMC use. Reid (1991) suggests that Internet Relay Chat users, predominantly college students, may safely assume that other users come from relatively affluent and educated social strata that further have in common access to Internet-linked computers (see also Baym, 1995). This becomes even more focused for members of particular on-line social support groups who share similar concerns, expertise, or maladies (see Baym, 1995; Egdorf & Rahoi, 1994;

Furlong, 1989; Rheingold, 1993; Scheerhorn, Warisse, & McNeilis, 1994). According to Sproull and Faraj (in press), "Even though electronic groups are usually composed of strangers, because they share a common interest, they are also likely to share common experiences. . . . One [on-line group member] says, 'There's a feeling of closeness, so it's easy to talk'" providing for some more positive relations than the accidents of location-based FtF communities afford (see Jones, 1995).

Although extant research on SIDE theory shows how CMC message receivers make social judgments, it does not deal with a sender's motivation or propensity to employ the language or paralanguage such receivers might see (although a recent reformulation of the theory recognizes the potential importance of this process, Spears & Lea, 1994). As already noted, the social information processing perspective has dealt with senders' motivations and their potential performatives more closely, predicting and describing how senders and receivers may achieve normal relational tone. However, not only do CMC senders overcome the limits of the media to express personal cues, they may actually do so in ways that FtF communicators cannot.

The Sender: Optimized Self-Presentation

Goffman (1959) describes the presentation of self in any setting as a perfor-mance designed to achieve a particular impression: "The performance of an individual accentuates certain matters and conceals others" (p. 67). The nature of these self-presentations are, in general, socially favorable; accord-ing to Bell and Daly (1984), "People expend considerable social energy attempting to get others to like and to appreciate them" (p. 91). The selection and deployment of favorable impressions may be enhanced in CMC. Two critical features of CMC may provide users the opportunity for what Walther (1992b; Walther & Burgoon, 1992) has called "selective self-presentation." Of the CMC participants in his research, Walther (1992b) noted,

> Among zero-history CMC participants particularly, one was not bound by the cues to personality others infer from physical appearance or vocalic attributes. They were better able to plan, and had increased opportunity to self-censor. With more time for message construction and less stress of ongoing interaction, users may have taken the opportunity for objective self-awareness, reflection, selection and transmission of preferable cues. (p. 229)

These two elements—reduced communication cues and potentially asynchro-nous communication—are both common in CMC. Whereas the preceding

observation mixes the two factors together, the latter is not always a factor as some CMC is "real-time" interaction. Each element, alone or together, may contribute to the process of selective self-presentation in CMC.

REDUCED CUES

Clearly, the absence of one's physical being in CMC has the potential to make more malleable the impression one is able to make. Although interpersonal impressions do accrue in CMC (Walther, 1993b), the social information on which they are based is conveyed primarily through language. And verbal behavior is commonly assumed to be more subject to our editing and control than are nonverbal behaviors (Ekman & Friesen, 1969). Thus first impressions are highly manageable in CMC, and such social valuations as one is able to garner are not impeded by messy hair, lack of makeup, or normal imperfections (see Godwin, 1994), much less more pronounced physical distractors or disabilities (see Dorning, 1994). As a teenage bulletin board user observed, "People at first wouldn't want to, you know, come and talk to me in the pie shop or whatever, but over the modem, it's a lot easier to break that because it's, like, they don't see that—they see the person, they don't see the physical form" (ABC News, 1993, p. 7). So it is said that in computer networks, one's social currency is based not on riches but on the information he or she manages and the wit with which it is given (MacKinnon, 1995; Rice, 1987).

Although information and expression in CMC may matter more than looks, gender, race, and the like, this is not to say that these and other traits are never apparent. However, such traits are often revealed through performance rather than appearance. Gender, for example, may be revealed, clearly or subtly, from selected sex-associated names (We, 1994) or indicated via self-disclosure or self-description (see Holmes & Berquist, 1990; Matheson, 1991; Selfe & Meyer, 1991). It may be obscured by the same means (see Bruckman, 1992; Curtis, 1992; Van Gelder, 1985). If masculinity and femininity are "display," as Birdwhistell (1970) called the behavioral expression of gender, they are nowhere more merely so than they are in CMC. The point here is that the information one gives about oneself is more selective, malleable, and subject to self-censorship in CMC than it is in FtF interaction because only verbal and linguistic cues—those that are most at our discretion and control—are our displays. As Feenberg (1989) observed,

> Users of electronic bulletin boards, dialogue systems, and computer conferences appear to each other only through explicit written lan-

guage. Where self-presentation takes the form of the production of personal texts, it is possible to reflect on a choice of tome and language in a way that few can achieve in speech, dress, and gesture. The communicating subject is profoundly modified by the generalization of such highly controlled forms of self-presentation. The "I" who presents you with the "me-as-text" is not exactly the same "I" who appears in face-to-face encounters. (p. 272)

Other teleconferencing research offers an interesting analog to this line of thinking. Chilcoat and DeWine (1985) examined three important interpersonal perceptions people had of each other—attractiveness, attitude similarity, and credibility—when they communicated via three synchronous systems that varied in the number of cues presented: FtF, videoconferencing, or audioconferencing. Their hypotheses were consistent with the cues-filtered-out perspective: The fewer the number of cues in a medium, the less positive these perceptions should be. Thus FtF interaction was expected to yield higher ratings than videoconferencing, with videoconferencing yielding higher ratings than audioconferencing. Their results indicated statistically significant differences, but not in the directions hypothesized. In fact, audio-conferencing partners produced *higher* ratings of their partners' attitude similarity, social attractiveness, and physical attractiveness than did those using video or FtF. To repeat, in the only condition in which they could not see each other, participants thought their partners were more physically attractive. (For a related on-line notion, see Figure 1.)

LOVERS AND OTHER STRANGERS

A related anecdote is found in Van Gelder's (1985) "Strange Case of the Electronic Lover." The case discusses a male bulletin board user who created a female on-line persona, Joan, who maintained several ongoing therapeutic and/or erotic relationships with women via CMC. The user's original objective was, ostensibly, to find out how females communicated with other females—an experience somewhat unavailable to a male in FtF interaction. His ongoing interactions were terminated when he was confronted by other users who had grown suspicious of some verbal inconsistencies. On revelation that Joan was a fraud, former partners expressed feelings ranging from anger to a sense of mourning and loss. While numerous articles and news stories about such encounters accumulate, Van Gelder's is particularly fascinating for the issues of trust, deception, and intimacy that it examines. Most interesting are the questions raised about selective self-presentation— a natural FtF phenomenon gone extreme or perhaps supernormal—in

"On the Internet, nobody knows you're a dog."

Figure 1: Drawing by P. Steiner (© 1993, The New Yorker Magazine, Inc.).

CMC. Nowhere is there a better illustration of Goffman's definition of self-presentation in which "an individual accentuates certain matters and conceals others."

COGNITIVE REALLOCATION: "THE WAIST IS A TERRIBLE THING TO MIND"

Another beneficiary of the lack of physical cues for the CMC sender may be in increased cognitive resources devoted to message construction. In CMC, there is no need physically to backchannel, hold in one's waist, nod, smile, remember to "look interested," and so on. We may shift attention from our need to maintain simultaneous expressive and sensory systems and devote it instead to language selection. Daly, Weber, Vangelisti, Maxwell, and Neel

(1989) documented the conversational planning that goes on during a computer-linked dyadic discussion, including complex contingency plans for knowledge acquisition and relational maintenance strategies. Although Daly et al. expect that conversational planning like this is not limited to CMC, it seems likely to be greater there than elsewhere. Indeed, Matheson and Zanna (1988, 1990) found that subjects using synchronous CMC exhibited significantly greater "private self-awareness" than did those communicating FtF. Private self-awareness, the researchers explained, involves salience of "personal feelings, attitudes, values, and beliefs . . . introspection . . . motivated by internal needs and standards" (Matheson & Zanna, 1988, p. 222). Such an orientation may enable communicators to express themselves in ways more revealing of their self-perceptions, or self-ideals, than they might otherwise. These abilities are enhanced when the need to attend to competing processes is reduced.

So far, I have argued that CMC senders, unfettered by unwanted cues or multiple conversational demands, may engage in personal and relational optimization. CMC receivers are prone to make flattering constructions from those messages when a relationship or commonality is sensed. In addition to the selective self-presentation of the sender and idealization of that source by the receiver due to minimal-cue interaction, there are further affordances for message management and coordination when CMC is asynchronous that may further lead to hyperpersonal communication.

Asynchronous Channels for Relational Coordination and Information Management

ENTRAINMENT AND DISENTRAINMENT

Returning to the realm of work group relationships, aspects of asynchronous CMC are illuminated by McGrath and colleagues' formulations regarding the "entrainment" problems that time presents in nonmediated groups (Kelly, Futoran, & McGrath, 1990; McGrath, 1991; McGrath & Kelly, 1986). Social entrainment refers to the synchronization among partners with respect to their interdependent activities within a larger milieu of independence. People are busy; group members have to devote both time and attention—each limited—to interaction with other group members.

McGrath identifies several problems of entrainment, two of which may help distinguish between asynchronous and synchronous interaction. These are "conflicting temporal interests and requirements" and "scarcity of tem-

poral resources" (McGrath, 1991, p. 162). They speak to the fact that meeting FtF requires members' copresence—time away from other important individual activities—and that this pressure leads groups with less time to devote their conversations to tasks rather than social comments. McGrath further states that individuals must respond to these conflicts by synchronizing: "making temporal commitments" and "regulating the flow of task and interpersonal interaction" (p. 162).

As Walther (1995b) has suggested, however, this conflict may be far less severe in asynchronous CMC. When communication does not require partners' simultaneous attention, individuals take part in their group's activities at time intervals of their own convenience. They may do so when the clock on other activities has stopped. The trade-off between time of day, length of time, and frequency for participation is much more a matter of individual choice. As a result of the relaxation of time constraints, each member is "freed up": In asynchronous CMC, the synchronizing strategies McGrath describes are modified and enhanced in ways, once again, that FtF does not afford. First, making temporal commitments becomes discretionary. Group members may attend to the group process independently in time. When partners may attend their groups at their convenience, limitations on the amount of partners' mutual time available for meetings are less problematic.

Second, following from the removal of temporal limitations, task and interpersonal interaction becomes, in a sense, disentrained; both task-oriented and socially oriented exchanges may take place without one constraining the time available for the other. Recall the earlier quotation from Smolensky et al. (1990) about the problematic inverse relationship between personal remarks and decision-making success: "People simply don't accomplish as much work on a task when they are generating extraneous conversation" (p. 269). One sees that this is a problem only when there is limited time together. As Hesse, Werner, and Altman (1988) point out, asynchronous interaction allows "the user almost unlimited time for editing, composing, sending, and receiving messages" (p. 151). Thus there is no inherent time-bound difficulty in "regulating the flow of task and interpersonal interaction" in asynchronous interaction, and this condition facilitates interpersonal processes under some conditions (such as anticipated future interaction) that might normally go disregarded. As Walther and Burgoon (1992) noted of their asynchronous conferencing participants who used the system at their convenience, they had ample time to send and probe for interpersonal information aside from task completion. Some asked of others, "What nightclubs do you like?" or "What did you think of the Wildcats last night? Think we'll make the playoffs this year?" (p. 78). On the other hand, FtF real-time communi-

cators tended not to disclose or probe in this manner. These examples are consistent with McGrath's (1991) prognosis that "groups with ample time tend to . . . engage in activities that can enhance the quality of production and to give appropriate amounts of attention to well-being and member-support functions" (p. 165). From this perspective, the observed interpersonal superiority of asynchronous CMC groups is not surprising.

This contention stands in contrast, however, to McGrath's (1990) projections about asynchronous technology effects. These are pessimistic, suggesting that the loss of synchronous conversational coordination will make communication more difficult and unpleasant. McGrath essentially suggests that without the potential for immediate feedback, disruptions in the temporal adjacency of conversational replies to their previous referents—the conversational context of messages—might upset our ability to interpret such messages. This view does not recognize, however, that most asynchronous conferencing systems represent conversational context with message topic indicators, sequencing markers, and various topical/structural features (see Rapaport, 1991). Indeed, the very time a message was sent and the latency of its reply interact with messages and roles to become relational cues in and of themselves (Walther & Tidwell, in press). The pessimistic view also seems not to have considered the positive disentraining effects of asynchronicity suggested here. As Turoff (1991) has suggested,

> The most misunderstood concept in CMC systems is the view that an asynchronous (or nonsimultaneous) communication process is a problem, because it is not the sequential process that people use in the face-to-face mode. The approach of "How do we make CMC feel to the user like face-to-face processes?" is incorrect. The real issue is how do we use the "opportunity of asynchronous communications" to create a group process that is actually better than face-to-face group communications? (p. 96)

INDIVIDUAL/SOCIAL BENEFITS

The enhancement of selective message construction, as already discussed, may also be facilitated by asynchronous CMC. In FtF conversation, much more effort is required of interactants than that devoted to the construction of verbal utterances. To participate in FtF real-time conversation involves "heightened levels of psychic, sensory, and emotional involvement and arousal, increased cognitive load, competing conversational and relational demands, differential salience of context cues" (Burgoon & Walther, 1990, p. 258) compared to those who observe communication from recordings.

Alternatively, in asynchronous interaction one may plan, contemplate, and edit one's comments more mindfully and deliberatively than one can in more spontaneous, simultaneous talk (Hiemstra, 1982). Asynchronous communication allows users to control interaction to a greater extent (Trevino & Webster, 1992). The conversational relaxation of asynchronous CMC, like the reduction of cues, should allow greater cognitive resources to go where they may be applied most efficaciously. According to Ochs's (1979) research on "planned discourse"—discourse that has been thought out and organized prior to its expression—asynchronous verbal communication is more intersubjective and less egocentric than is unplanned (spontaneous) discourse. Ochs argues that in spontaneous discourse "situational demands on the level of turn-taking may lead a speaker to ignore displays of politeness appropriate to that situation" (p. 77). In other FtF research, Greene and Lindsey (1989) found that communicators facing multiple conversational goals were more fluent in better preserving the "face needs" of communication partners when they could plan, rehearse, and then speak compared to those who had to construct and produce such messages immediately. Asynchronous interaction may thus have the capacity to be more socially desirable and effective as composers are able to concentrate on message construction to satisfy multiple or single concerns at their own pace. According to Harasim (1993), asynchronous CMC

> participants can take time to formulate their ideas into a more composed and thoughtful response, contributing to improved quality of communication. This attribute is especially advantageous for educational and business networld activities, but it is also important in the social networld, where the time to reflect before responding can enhance the exchange. (p. 24)

Similar phenomena have been seen in other domains of interpersonal communication in which CMC was not a factor but another form of reduced-cue, asynchronous interaction was. Stafford and Reske (1990) studied communication among engaged couples. Some of these premarital partners lived with or near each other, whereas others had "long-distance relationships" with partners living in geographically remote areas. The researchers assessed the relationships among the communication media the partners used—FtF, telephone, or letter writing—and the degree of satisfaction they experienced. Interestingly, the percentage of these couples' communication that occurred FtF was *negatively* associated with their ratings of marital adjustment, marital communication, and idealization. The percentage of communication over the phone showed no significant correlations with these

outcomes. Yet, the percentage of communication exchanged as letters showed very large, positive correlations with adjustment, communication, idealization, and one more variable: love. Although Stafford and Reske's research did not deal with electronic communication, the parallels are striking. The more that communication was exchanged via the asynchronous, minimal-cue medium, the more favorable the partners' perceptions of each other, their communication, and their affection.[4]

Feedback: An Intensification Loop

A classical model of communication incorporates the feedback between sender and receiver, as reciprocal interactions over time are critical aspects of the communication process. In CMC as well, flattering impressions and intimacy may begin through the sender and receiver processes presented here, yet the reciprocal influence that partners exert through a process known as *behavioral confirmation* has profound potential to magnify these effects. Whereas behavioral confirmation has important effects in FtF communication (e.g., Burgoon, Buller, Dillman, & Walther, in press; Burgoon & Le Poire, 1993; Rosenthal, 1981) they seem to be magnified in minimal-cue interaction.

The phenomenon has been seen most strongly in research using telephone interactions. In Snyder, Tanke, and Berscheid's (1977) research, male subjects engaged in telephone conversations with female subjects. Unbeknownst to the females, the males had been shown photographs of either physically attractive females or physically unattractive females, ostensibly representing their conversational partners (but actually depicting paid models who were not engaged in the phone conversations). These conversations were recorded for analysis. The initial (bogus) physical stimulus affected males' impressions of the females' stereotypical *interpersonal* characteristics such as sociability, poise, sexual warmth, outgoingness, both preinteractionally and after actual conversation. The dramatic finding in this research is found in observers' ratings of the "blind" female partners' portions of the conversations. These judgments showed that the females who were unknowingly thought to be more physically and socially desirable came to behave in the expected way. They also displayed more "confidence, greater animation, greater enjoyment of the conversation, and greater liking for their partners than those women who interacted with men who perceived them as physically unattractive" (p. 662). In other words, when a male believed he was speaking to an attractive partner, it affected his communication; his communication, in turn, affected the female partner's engagement in the conversation, leading her to, in essence, become more beautiful.

This cycle of behavioral confirmation and magnification tells us a lot about idealization through restricted media. It is well accepted that, off-line, we respond to others based largely on our expectations despite what their actual behavior may present. At the same time, when disconfirming social data are less available and what does occur is selectively sent and selectively perceived, the reciprocal process of behavioral confirmation may be more likely yet. Such a process as this may explain how such surprisingly intimate, sometimes intense, and hyperpersonal interactions take place in CMC. CMC provides an intensification loop.

Toward a New Perspective

Thus CMC provides, in some cases, opportunities for selective self-presentation, idealization, and reciprocation. This renders hyperpersonal communication, forms of interaction that exceed what we may accomplish FtF, in terms of our impression-generating and relational goals. Why would people be attracted to such distortions? Perhaps because this kind of interaction has the potential to be profoundly rewarding; as Schlenker (1985) proposes of interaction in general, "People are more satisfied in particular relationships and situations to the extent that their desired identity images are supported, validated, or elicited" (p. 93). Such a view helps explain the ardent, positive relationships that develop over CMC networks (which the popular press so enjoys featuring; e.g., ABC News, 1993; Landis, 1994). The Cyrano-like contrast between what one is able to construct on-line versus off-line is seen most poignantly in the following account of acquaintanceships moving from the mediated to the immediate.

> The fragility of the social edifice that members construct on their computer screens does not always survive the real world. "People are presenting themselves in the best light, and sometimes when you meet them they seem smaller," said Ms. Strother, whose (Prodigy) music-discussion group arranged several (FtF) social events, a move she described as a mistake. "When you get these compressed messages you fill in the blanks and think you've met your soulmate, but in fact a lot of these people have trouble functioning normally." (Grimes, 1992, p. B4)[5]

To summarize, a new perspective is offered here—a fully integrated view of CMC taking into account the sender, receiver, channel, and feedback as each contributes to hyperpersonal interaction in CMC, interaction that is more desirable than we can often manage FtF. At the level of the sender, CMC partners may select and express communication behaviors that are more

stereotypically desirable in achieving their social goals and transmit messages free of the "noise" that otherwise comes with unintended appearance or behavior features. At the other end, CMC receivers take in these stylized messages, construct idealized images of their partners and relationships, and, through reciprocation, confirm them. These processes may be further enhanced when the minimal-cue interaction is also asynchronous; freed from communicating in real time, users are released from the pressure to meet and the stress of including both task and social issues in limited time intervals typically allowed by FtF interaction. Time is frozen and conversation is disentrained when partners "meet" independent of one another. These phenomena are not limited to specifically recreational CMC—the kind of systems Hiltz et al. (1989) referred to as "interaction space with all the social control of a mardi-gras" (p. 225)—although hyperpersonal interaction is rampant there. These effects also enhance the normal impression management processes among work teams and organizational associates.

Theoretically, this approach reduces CMC to two structural properties: partial-cue and asynchronous communication (although it is unclear whether these may be additive or interactive effects). There are two implications of this. The first is that the appropriate control group against which to test CMC may not be FtF meetings but rather writing. If CMC does what it does because it is editable verbal communication, then it should be comparable with other forms of written communication.[6] Whereas electronic communication certainly travels faster than even express delivery services, rapid circulation is not inherently tied to modern technology, either. As Danet (1994) has pointed out adroitly, the postal system of Victorian London offered hourly pickup and delivery of messages (see Briggs, 1988). Such parallels suggest a way of teasing out the critical factors of CMC. They suggest, at least, some measure of conservatism before declaring CMC to be a unique communication medium. If transmission speed is a potent factor in mediated communication, then that should be demonstrable.

The second implication is that these causal properties—asynchronous interaction and the reduction of cues—cannot be assessed independently. Experiments can show us the effects of differences in the range of cues from FtF through videoconferencing, audioconferencing, and text alone (e.g., Valacich, Mennecke, Wheeler, & Wachter, 1994). Research can also explore the effects of synchronous versus asynchronous communication. A complete cross, however, that would establish the relative, additive, or interaction effects of synchronicity and cues is not possible. There is no combination available for examining FtF asynchronous communication; any asynchronous interaction involves at least some mediation, some reduction in cues. This state of affairs is frustrating to the experimental researcher who likes

to view phenomena from the lens of an X-by-X matrix and finds immediately that there is necessarily an empty cell.

This view of CMC is not without theoretical challenges as well. Further development of the theory must address the issue of what predictions may be offered in the case where a communicator does *not* wish to be friendly, competent, or otherwise stereotypically positive. This is a problem—a happiness and warmth bias—in much interpersonal communication research (see Burgoon & Bailey, 1992), not just in mediated communication. We have seen users offer classically dominating and even vicious self-presentations in some CMC "MOO" spaces (see Dibbell, 1993; Reid, 1995). While "flaming" is really rather rare in computer conferences (Lea, O'Shea, Fung, & Spears, 1992; Walther et al., 1994), snide and nasty comments are contagious in certain Usenet newsgroups (McLaughlin et al., 1995). The present perspective suggests that these impressions were just what the users wished to convey. Further, such self-presentations may indeed be conveyed more effectively via CMC than they can in FtF interaction, for the very same reasons that a more positive impression may be enhanced—users are able to advance stereotypical cues of these states, which, in the absence of other cues, may be interpreted quite hyperbolically by mediated receivers; at times, "ASCII is too intimate" (Godwin, 1994, p. 69). The problem, however, is in the ability of a theory—or tests of the theory—to specify a priori just what effect may be intended. Without such specification, the framework becomes teleological, only able to explain in retrospect that "he expressed himself pitifully because he *wanted* to express himself pitifully." However, experiments in which particular social goals are induced (e.g., Clark, 1979; Scheerhorn, 1991/1992) may help us untangle these problems.

Some may find the perspective elitist: These types of message enhancements might be expected among the types of populations that so far have been common on CMC networks—inhabitants of high-tech organizations and major educational institutions as well as the well-off—among whom verbal skills are prized and relatively well developed (Reid, 1991). The poor are not on-line, one might reasonably argue. Nor should we expect those with less social skills or those who are affectively impaired to optimize their interaction in stereotypically supernormative ways.

Yet, among some such users, CMC had this interesting effect at least once. Zimmerman (1987) provided 30 minutes of asynchronous computer conferencing twice weekly over 11 months to a group of 18 clinically disturbed 13- to 20-year-olds. Half the subjects' families were on public aid; of all the participants, 22% were schizophrenic, 34% experienced affective disorders, 39% had conduct disorders, and 5% had developmental disorders. Their CMC

records were content analyzed, as were transcripts of FtF group sessions. Comparisons of the participants' language yielded several interesting results. First, CMC language was more egocentric than was FtF speech, even though *less* self-referential language is associated with disorganized and schizophrenic syndromes. Additionally, CMC language indicated less stress, greater expression of feelings, more positive evaluations of others and self, and more frequent reference to interpersonal issues. Zimmerman (1987) concluded that "computer-mediated communication may represent a new resource for eliciting emotionally rich, relationship-oriented verbal interaction among emotionally disturbed adolescents" (p. 228). Meanwhile, more and more individuals of all types are joining commercial network services (see Rheingold, 1993; Rickard, 1993), and many civic governments are adopting the view that the Internet is a public good, like a library, to which citizens are entitled access (see Brown, 1994; Schuler, 1993). As the information superhighway gains easements through more sidestreets, there is more and more diversity on-line, and whether former have-nots will do as did the haves (see Dervin, 1989) will soon be seen. According to Negroponte (1995),

> The user community of the Internet will be in the mainstream of everyday life. Its demographics will look more and more like the demographics of the world itself. . . . The single biggest application of networks is e-mail. . . . It is creating a totally new social fabric. (p. 183)

How will this perspective fare as CMC compares with computer-based multimedia such as the World Wide Web, desktop videoconferencing, or virtual reality? In one sense, the question begs comparison. The World Wide Web, an incredibly popular new CMC technology with text, pictures, sound, and video, remains primarily a form of publication rather than a channel for interactive communication. While some "pages" facilitate e-mail responses and some Web-based conferencing systems are developing, the interactive aspects still rely on text-based messaging. One developer (Curtis, 1995) has proposed that existing Web-based "shopping malls," replete with pictures of retail items, have forgotten that real-life malls are inherently social spaces; virtual shopping might be supplemented by on-line, text-based chat spaces so that shoppers can make inquiries of on-line sales representatives. Elsewhere, based on social information processing theory, work is under way to "personalize" some corporate customer service Web pages. The use of technicians' personal names and pictures as access points, rather than using vague department- or role-related addresses, is hypothesized to begin the personalization of professional and corporate-consumer relationships (Walther, 1995a). Whereas Beniger (1987) might refer to such a strategy as "pseudo-

personalization," it bears a reminder that all encounters begin with stereo-typical first impressions and that interaction—mediated or not—may lead to the development of rapport and affection at interpersonal or hyperpersonal levels.

Another alternative channel, desktop videoconferencing, seems to be a viable replacement for telephone interactions but not for standard CMC, at least as far as task-related functions are concerned. As Rice, Kraut, Cool, and Fish (1994) report, when one's target party is not available for a synchronous "video-call," a user will resort to asynchronous e-mail. The role of asynchronous interaction via CMC once again facilitates special disentrainment opportunities for communication that may be robust to multimedia alternatives as currently available.

Will virtual reality systems replace standard CMC? Our crystal ball is conflicted over this. Whereas Palmer (1995) conjectures that multisensory interaction holds the potential for structural, if not functional, interpersonal superiority over more restricted channels, Biocca and Levy (1995) remind us that sometimes "less is more" (p. 148) and that, when real-time virtual reality is widespread, some interactions—particularly noninterpersonal ones—may nevertheless be more comfortable and effective using lower levels of "presence." These authors also suggest that hierarchically oriented encounters will probably entail greater visual presence to mirror the multicue FtF patterns of interaction control. Yet, this proposal does not fully take into account the sometimes advantageous democratizing effects of strategically impersonal CMC and GDSS. Nor does it take full stock of the possibility that "less may be more" in intimacy and hyperpersonality as well. As Negroponte (1995) observes, "interactive multimedia leaves very little to the imagination" (p. 8), an important aspect of hyperpersonal communication: "In all likelihood, in the next millennium e-mail . . . will be the dominant interpersonal telecommunications medium, approaching if not overshadowing voice within the next fifteen years" (p. 191). Common use of virtual reality remains down the road, but impersonal, interpersonal, and hyperpersonal interaction on-line is at hand and growing.

When is mediated interaction impersonal? Rarely. In natural or experimental settings where participants have restricted time frames for interaction or when the purpose of the interaction does not include interpersonal goals in the first place, conditions that may be uncommon, but no more so in CMC than in FtF social existence. And when on-line encounters do not include anticipated future interaction, they are less personal than comparable FtF encounters. Additionally, CMC is impersonal when such an effect is desired and implemented through specific technological aids such as anonymity and thick layers of software-imposed interaction structures, as in

GDSS applications. In the former, impersonality may not help coworkers reach better decisions; CMC takes too long and/or users become less able to reach agreement. In the latter, it may not be the computer system itself but rather the anonymity and the diminution of turn taking and consensus seeking provided by the software that affects idea evaluation; the results are still ambiguous.

When is CMC interpersonal? When users have time to exchange information, to build impressions, and to compare values. There is nothing radical in this; it is true of FtF interaction, too. It may take longer in CMC, however. On the other hand, when users even so much as *expect* to have a long-term association, CMC is no less personal than FtF.

When is CMC hyperpersonal? When can users create impressions and manage relationships in ways more positively than they might be able to conduct FtF? When users experience commonality and are self-aware, physically separated, and communicating via a limited-cues channel that allows them to selectively self-present and edit; to construct and reciprocate representations of their partners and relations without the interference of environmental reality. Perhaps moreso when this communication is asynchronous and/or when the CMC link is the only link there is.

The early view of CMC was that it was both liberating and limiting. CMC liberates by transmitting information across distance in almost no time and keeps it there until needed. It limits the kinds of communication cues at our disposal, and CMC was thought to be task-oriented and cold; "typed" and "computerized" seem antithetical to "warm and personal." As I have argued in the preceding, CMC may be liberating in the second regard as well, and allow us selectively to minimize or maximize our interpersonal effects. Does computer mediation make communication either impersonal or hyperpersonal? No, not computer mediation alone. CMC affords opportunities, however, to communicate as desired; an impulse that seems to be inherently human yet may be more easily enacted via technology.

Notes

1. The author thanks two anonymous reviewers and the editors of *Communication Research* for their comments, which aided in the development of this article. A previous version was presented at the International Communication Association annual meeting, Albuquerque, NM, May 1995.

2. One direct challenge to the internal validity of the cues-filtered-out research is by Walther (1992a), who singularly argues that when CMC transcripts are compared to transcripts of FtF conversation, as was commonplace in the cues-filtered-out studies, the comparison may be moot. By systematically ignoring the nonverbal FtF cues that are most likely to convey the social and relational information of critical interest, which

may be negatively valenced, comparisons between CMC and FtF communication may be tainted. Only one study has compared CMC transcripts to videorecorded, full-cue FtF communication, with results antithetical to the cues-filtered-out perspective (Walther, 1995b).

3. Although the stem "hyper" is associated with many words with varying connotations, the element is used here consistent with its dictionary definition—"an element appearing in loan words from the Greek, where it meant "over," usually implying excess or exaggeration (*hyperbole*) . . . cf. super-." (Random House, 1971, p. 698)—thus *hyperpersonal*, or superpersonal, more stereotypically socially desirable or intimate than normal.

4. It is possible that the sampling strategy may have influenced these outcomes. Rather than writing leading to affection and adjustment, a rival hypothesis might be that premarital couples who are not already adjusted and satisfied react aversely to geographic separation and minimal-cue interaction and disband, leaving them excluded from research on presently engaged couples. If this is the case, however, the correlations still suggest that well-adjusted and loving couples use written communication for a larger proportion of their contact.

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6. One linguistic analysis of synchronous CMC to writing found that the prose style may constitute an "emergent register," a cross between speech and writing (Ferrara, Brunner, & Whittemore, 1991). It remains to be seen how this register might affect interaction. See also Zimmerman (1987).

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