

4.2. *Object of study: 'electronic language'*

As we noted in Section 3, our object of study is computer mediated communication as one-to-one dialogue with an identified interlocutor (email), with some reference to one-to-many dialogue with identified interlocutors (e.g. listservs, computer conferencing). Collot and Belmore (1996) cluster these two kinds of electronic message exchange under the name 'electronic language'.

Although one-to-many dialogues are not technically email, the line between them and email is often as much a function of technology or institutional organization as it is a difference in language style. On the one hand, by addressing email to multiple recipients (either in the address or 'cc' line), one can approximate one-to-many conversation. On the other hand, in some one-to-many dialogues, especially on smaller listservs or computer conferences, the central exchange is, in essence, between two main participants (albeit with an audience to the proceedings). This blurring of distinctions between one-to-one and one-to-many dialogue was clear even from the inception of the technology (see Siegman, 1983, p. 3).

Most existing studies of electronic dialogue have been of one-to-many conversation. This research choice has been driven both by technology and by privacy conventions. Since many organizations keep central copies of exchanges of one-to-many electronic dialogues, getting hold of such data bases to analyze is relatively easy, especially because the messages are already semi-public (i.e. to other members of the list/conference/bulletin board). Moreover, until recently, computer conferencing (i.e. one-to-many dialogue) was the predominant form of computer mediated communication (Feenberg, 1989). Widespread access to individual email only emerged in the 1990s.

In comparison, large-scale studies of one-to-one electronic dialogue are more methodologically challenging. For practical purposes, files reside on the individual computer accounts of senders and recipients (the presence of organizational backup files is unknown to many users). Few individuals would likely volunteer their email 'in' and 'out' baskets for public analysis. Some early studies were done on the use of email within business settings (e.g. Sherblom, 1988), but less is known about email exchange between private individuals.

As a result, much of our thinking about the linguistic properties of actual email is anecdotal, based on small sample size, or derived from simulated message-sending (e.g. Seu et al., 1991) rather than naturalistic data. Given these methodological hurdles, it is perhaps not surprising that studies purporting to discuss the linguistic character of email often turn out to be analyses of one-to-many dialogue.

Lacking two distinct sets of studies, we will treat data collected from either source as reasonably indicative of the specific genre here under investigation, namely email. While more differentiated studies might reveal differences reflecting the number of recipients (and the presence or absence of an 'audience' choosing merely to observe the passing show), we do not anticipate that such analyses will significantly alter the profile of email that emerges later in this paper.

4.3. Existing studies of email

The majority of early email studies emerged not from linguists but from students of information systems and organizational behavior. Many of our commonly held ideas about email (and CMC more generally) derive from work done by Lee Sproull and Sara Kiesler (e.g. 1986, 1991) and from the research of Starr Roxanne Hiltz and Murray Turoff (e.g. 1978/1993). Other socially-oriented studies (including more recent work) can be found in Murray (1991), Lea (1992), Tuman (1992a,b), Jones (1995), Ess (1996), and Herring (1996).

Many of these 'human factors' investigations involved social parameters of language use. The following conclusions were commonly drawn:

Email is informal (compared with 'traditional' writing)

Email helps develop a level conversational playing field

Email encourages personal disclosure

Email can become emotional ('flaming')

4.3.1. Email is informal

Analyses of email frequently comment on its informality (e.g. Turner, 1988; Feenberg, 1989; Spears and Lea, 1992). Compared with prose composed with paper and pen (or even typewriter or word processor), email tends to use more casual lexicon, to be less carefully edited, and to assume a greater degree of familiarity with the interlocutor (as evidenced, for example, by choice of salutation or ease with which you introduce humor or sarcasm into an exchange with a person you don't know or don't know well). In email, for example, the use of first names is quite common, even with people you have never met.

4.3.2. Email helps develop a level conversational playing field

Studies of email in business or academic settings repeatedly note that by reducing visible and auditory social cues about interlocutors, email enables participants to interact in a less constrained way than when face-to-face (see, for example, Sproull and Kiesler, 1986, 1991; Murray, 1991). This observation has been applied to females communicating with male colleagues, to those lower on the organizational chart interacting with those higher up, and to students (especially female) engaging in dialogue with faculty (especially male). Even when one's identity is revealed, the level of 'comfort' in initiating communication, suggesting new ideas, and even critiquing proposals made by those perceived as higher on the status chain is not necessarily reduced.

4.3.3. Email encourages personal disclosure

In their 'meta-analysis' of 25 years of research findings (1969-1994) on the role of computers in personal self-disclosure, Weisband and Kiesler (1996) report that people offer more accurate and complete information about themselves when filling out questionnaires using a computer than when completing the same form on paper or through a face-to-face interview. The differences were especially marked when the information at issue was personally sensitive. Interestingly, although these differences

remained significant throughout the period of study, the effect of the computer on encouraging self-disclosure seems to have lessened in recent years. Weisband and Kiesler hypothesize that as users gain computer experience and as computer screens increasingly emulate traditional paper-and-pen formats, the discrepancies between the computer's surface character (as anonymous, ephemeral representation) and its actual function (here, of recording personal data for others to read) become more apparent.

Although the Weisband and Kiesler review focuses on computers used for data-gathering rather than social dialogue, the same issues of privacy and disclosure are at work in both electronic contexts.

4.3.4. *Email can become emotional*

As we have already noted, early discussions of email repeatedly talked about the emotional nature of the medium. Out-and-out rudeness may, statistically, be declining in email, though the potential for misunderstanding and bruised feelings still remains high, particularly as email continues to attract waves of new users who have no experience in coping with its absence of traditional paralinguistic cues. While many email users have historically added emotion-markers (so-called 'emoticons' or 'smileys') as paralinguistic footnotes to their literal messages (see Sanderson, 1993), it is not clear that these less-than-intuitive symbols will achieve widespread usage among email's currently burgeoning clientele.

A second branch of research has added more formal linguistic analysis to the continuing 'human factors' approach to electronic dialogue. With the exception of a few early discussions (e.g. Baron, 1984; Sherblom, 1988), linguistically oriented studies are fairly recent (see *Written Communication*, 1991, 8 (1), including articles by Wilkins and by Ferrara et al.; Herring, 1996, Part I; Moran and Hawisher, 1998).

Sherblom's study, while narrowly focused, provides insightful linguistic findings on the use of signatures at the end of email messages sent within a large organization. Since in this organization the identity of the sender was already clearly stated in the 'FROM' line at the top of the email form, signatures did not add new semantic information. The study examined whether signatures served as electronic paralinguistic, reflecting 'the hierarchical and communication relationships between the mail file sender and the receiver' (Sherblom, 1988, p. 44).

Sherblom found that relative social position in the organizational hierarchy indeed influenced signature use. None of the messages sent down the organizational chain was signed, while 33% of the messages sent up the chain had signatures. Messages from other offices (i.e. outside the direct organizational hierarchy) were the most likely to be signed—39%, while 13% of messages sent horizontally (i.e. to peers) bore signatures.

The author also analyzed the types of messages correspondents sent to one another. Organizational hierarchy was once again reflected in message content. Of the 157 mail files examined, roughly 80% provided or requested information, or contained administrative detail. Only a handful of messages were personal or social in nature, and these were generally found in horizontal communication (i.e. with peers) rather than either up or down the vertical organizational hierarchy. However, Sherblom recognized that this functional distribution was not necessarily intrinsic to the medium:

As electronic mail and other forms of computer mediated communication are used by more organizations, changes can be expected in the function and context of the organizational communication as a whole and, perhaps, in the definitions and meaning structures through which the organizations themselves are constituted (Sherblom, 1988, p. 51).

Sherblom's exclusive focus on email data has been the exception thus far. As in the case of 'human factors' research, the two major linguistic studies (to date) of electronic language (Collot and Belmore, 1996; Yates, 1996) have analyzed corpora collected from one-to-many dialogues. Both studies compared their 'electronic' corpus against the same spoken and written data bases, namely, the 500,000-word London–Lund corpus of spoken English (Svartvik, 1990) and the one-million-word Lancaster–Oslo/Bergen corpus of written English (Johansson et al., 1978).

The two studies drew upon existing analyses of differences between spoken and written language (including Halliday, 1978; Chafe and Danielewicz, 1987; Biber, 1988) as points of comparison. All of these studies assume spectral rather than dichotomous relationships between speech and writing. Thus, the question for Collot and Belmore and for Yates became, in which particular communicative contexts is electronic dialogue more like writing or speech. The spoken, written, and computer mediated data were analyzed with respect to such linguistic variables as lexical type/token ratio, word length, and prevalence of particular kinds of lexical or grammatical categories (e.g. attributive adjectives, passive voice, modals, sentential complements, and pronominal usage).

The resulting linguistic profile of electronic dialogue (i.e. more like writing or more speech-like) reflected communicative context and the particular linguistic measure used. For example, on such textual measures as type/token ratio or frequency of adverbial subordinate clauses, the electronic text more closely approximated writing. However, on communicative measures such as the extent to which the message sender appeared personally involved in crafting the message (as opposed to merely informative), electronic messages looked more like speech. ('Involvement' was linguistically measured by the presence of first and second person pronouns, contractions, and modal auxiliary verbs.) A sampling of the results from these two studies appears in Fig. 7.

Summing across the communicative spectra, Collot and Belmore (1996, p. 21) concluded that 'the genres which [electronic language] most closely resembles are public interviews and letters, personal as well as professional.' Yates (1996, p. 46) closed his analysis by emphasizing the heterogeneous character of electronic messages:

As with both written and spoken discourse, computer mediated communication is affected by the numerous social structural and social situational factors which surround and define the communication taking place.

(See Moran and Hawisher (1998) for a summary of several studies in Herring (1996), along with an independent analysis of 'the rhetoric and languages of electronic mail'.)

Having surveyed some previous attempts to characterize the social and formally linguistic properties of electronic dialogue in comparison with speech and writing, it is time to attempt an integrated analysis.

4.4. *Integrated profile of email: a first approximation*

What follows is a first attempt, at a particular moment in time (the late 1990s), to lay out the major social and linguistic factors of email as a communicative system. We do so by measuring each factor against a single dichotomous yardstick, with writing at one end and speech at the other. While the unitary dichotomous model has acknowledged shortcomings, it nonetheless enables us to conceptualize the linguistic parameters of email in terms of a common grid.

Our profile of email is divided into the same four major components we used in Fig. 1 for characterizing writing versus speech:

- Social dynamics—The social dynamics of communication define the relationship between participants in the exchange.
- Format—The format of communication defines the physical parameters of the message that result from the technology through which messages are formulated, transmitted, and received. Given the rapid evolution of computer technology over the past 30 years, some aspects of form (e.g. chunk size, editing) that were originally restricted by the technology are now, in principle, less constrained. However, earlier presuppositions (e.g. about the difficulty of editing emails) still color contemporary usage.
- Grammar—The grammar of communication defines the lexical and syntactic aspects of the message.
- Style—The style of communication defines the choices users make about how to convey semantic intent. These choices are expressed through selection of lexical, grammatical, and discourse options.

Each of the four components is subdivided into a representative set of variables (i.e. linguistic features). An assignment is then made as to how each variable functions prototypically in written and spoken language. For example, in Fig. 5 (Email social dynamics), the variable 'Physical Proximity' has the value 'separated in time and/or space' for writing and 'face-to-face' for speech.

Next, each linguistic feature is analyzed with regard to how it functions in email. Initial assignments are made by placing a 'P' ('in principle') in the writing or speech column of the modality spectrum. These assignments are largely based upon the composite literature we have just reviewed (although a few judgements reflect the author's personal observations). For example, again in Fig. 5, email functions more like writing than like speech with regard to physical proximity, since email interlocutors, like participants in traditional writing, are separated in time and space.

Finally, to fine-tune the linguistic grid, two additional scoring mechanisms are added. The first is needed because some email variables don't function the same way as either speech or writing. In a number of cases, email edges towards the center of

P = paradigmatic email usage ("in principle")
 A = actual / additional email usage ("in practice")

COMMENTS

MODALITY

← Writing → Speech →

LINGUISTIC FEATURE

Physical Proximity	separated in time and/or space P→	face-to-face	physical proximity provides opportunity for immediate feedback email affords greater opportunity for rapid feedback than paradigmatic writing because of the speed of transmission, even in asynchronous email
Identity of Interlocutors	sender known recipient may or may not be known	sender and recipient both known P	
Assumptions about Privacy of Transmission			
Known Interlocutor:	privacy assumed (e.g. personal letter) P	privacy assumed (e.g. private conversation)	
Unknown Interlocutor:	privacy not assumed (to "publish" = "to make public")	privacy not assumed (e.g. public address) A	
Nature of Conversational Playing Field	lack of physical presence helps level the field ←P	known age, gender, status contribute to hierarchy	email has even more level playing field than writing
Degree of Personal Disclosure	lack of physical presence fosters disclosure ←P	disclosure inhibited by physical presence of interlocutor	email fosters even more disclosure than writing
Initiation	can write to whomever choose, but distribution and receipt by addressee not assured ←P	speaker not always free to initiate message, even face-to-face	email offers access to people and at times precluded by face-to-face exchange ease of sending email makes initiation of email simpler than initiation of traditional writing
Response	writing allows for much time delay P→	face-to-face exchange demands immediate response	email assumes rapid response (especially when receipt of email can be confirmed)

Fig. 5. Email social dynamics.

P = paradigmatic email usage ("in principle")
 A = actual / additional email usage ("in practice")

LINGUISTIC FEATURE	←Writing-----MODALITY-----Speech→	COMMENTS
Durability	durable P	although email is inherently durable (it is typed, it can be saved, it can be printed out), users often employ it in lieu of (ephemeral) telephone calls or face-to-face conversation, as evidenced by lack of editing and less formal style (see below, Figure 8)
Means of Processing Information	searchable, can be read quickly P	as a written modality, email is faster to scan for information than speech signal
Chunk Size	any length, though visually grouped by paragraph, page A	electronic messages originally intended to be brief (no more than a single screen of text). As usership and functions of email have expanded, so have the lengths of many email messages
Editing	edited (A)	original lack of editing was a function both of viewing email as "speech by other means" (and therefore not needing to be edited) and the technology (earlier editing systems were cumbersome to use; typing skills were not expected of email users). However, a small subset of email users insist on careful editing, especially when using email in lieu of formal written correspondence

Fig. 6. Email format.

P = paradigmatic email usage ("in principle")
 A = actual / additional email usage ("in practice")

LINGUISTIC FEATURE	MODALITY		COMMENTS
	← Writing →	Speech →	
LEXICAL:			
Pronouns	heavily 3 rd person	heavily 1 st , 2 nd person P→	(see Collot and Belmore 1996; Yates 1996)
Adjectives and Adverbs	varied	heavier use of attributive adjectives and amplifiers (e.g., <i>very</i> , <i>utterly</i>) P	(see Collot and Belmore 1996)
TYPE/TOKEN RATIO:	high P	low	compares number of different words to total number of words (see Yates 1996)
SENTENTIAL/SYNTACTIC:			
Lexical/Grammatical Density	higher P	lower	measures ratio of lexical to grammatical elements (see Halliday 1978; Yates 1996)
Adverbial Subordinate Clauses (e.g. "since ...", "while ...")	common P	less frequent	(see Collot and Belmore 1996)
Disjunctions (e.g. "however", "in contrast")	common P	less frequent	(see Collot and Belmore 1996)
Tense	present, past, future	present P	(see Collot and Belmore 1996)
Contractions	few	many P	(see Collot and Belmore 1996)

Fig. 7. Email grammar.

P = paradigmatic email usage ("in principle")
 A = actual / additional email usage ("in practice")

LINGUISTIC FEATURE	MODALITY		COMMENTS
	←Writing-----	-----Speech→	
LEVEL OF FORMALITY	high	low P	traditional email has been more informal than traditional writing. However, as the usership of email and the range of functions of email grow, email is expanding to include formal stylistic usage as well (e.g. job applications, thank-you letters).
POLITENESS: Forms of Address	formal	informal P	frequent use of 1 st and 2 nd person pronouns in email
Salutation, Signature	obligatory	optional P	email often omits salutation or uses generic, informal "Hi" (even with strangers) email often omits signature, especially in messages sent down an organizational chain
Emotion	varied, but usually monitored before message sent	varied, but often not self-monitored P→	emotion on email often not monitored before sent. Lack of paralinguistic cues and/or immediate reply can further inflame email emotion
HUMOR	varied	often higher P	use of humor to establish rapport is common in email, perhaps to help compensate for lack of visual signals or perhaps because email encourages personal disclosure (see Figure 5)

Fig. 8. Email style.

the writing-speech dichotomy, as in the case of physical proximity in Fig. 5. While email is more like writing than speech with regard to proximity, email also shares some characteristics of speech, in that email allows for more rapid feedback than does traditional writing. In other cases, email outdoes writing or speech with regard to a particular feature. Consider, for example, 'Nature of conversational playing field' (again in Fig. 5). While lack of physical presence helps level real or perceived hierarchies between interlocutors in traditional writing, the effects reported for email appear to be even higher. Modulations to the dichotomous assignment are indicated with arrows ('→' or '←').

Second, as we saw at the end of Section 2 ('Principles versus practices'), actual usage of a linguistic form does not always follow commonly espoused principles. Therefore, where relevant, actual and/or additional email options ('in practice') are also indicated (with an 'A') as being more like writing or speech. In Fig. 5, for example, we see a mismatch between our paradigmatic assumption that email is private correspondence ('P') and the actual reality that it can be (publicly) accessed by others ('A').

Figs. 5–8 summarize the linguistic features of email as they relate to Social dynamics, Format, Grammar, and Style, respectively.

Reviewing the results shown in Figs. 5–8, we find a linguistic profile of email begin to emerge. Fig. 9 summarizes the pattern of contemporary paradigmatic ('P') email usage.

Unfortunately, reality is not clear-cut. While Social dynamics, Lexicon, and Style distribute themselves neatly on the dichotomous writing/speech spectrum, Format and syntax have mixed profiles. Moreover, Fig. 9 does not take into account the modulating features we incorporated into the linguistic profile: email usage that doesn't precisely correspond to writing or speech (indicated with arrows) and conflicts between paradigmatic email usage and actual practice (marked with 'P' versus 'A'). To illustrate the kinds of difficulties that remain in constructing a grammar of email, we will explore two examples of email paradoxes, in which our paradigmatic presuppositions about email as speech or writing lead in different directions than actual usage.

<u>Linguistic Component</u>	<u>Email Most Like:</u>
Social Dynamics	predominantly writing
Format	(mixed) writing and speech
Grammar	
Lexicon	predominantly speech
Syntax	(mixed) writing and speech
Style	predominantly speech

Fig. 9. Overall linguistic profile of email.

4.5. *Email paradoxes*

Among the paradoxes of email, two stand out as indicative of the contradictory usage expectations this new modality is generating among its growing usership. The first, 'The papertrail paradox,' involves issues of both privacy (a feature of Social dynamics) and durability (a feature of Format). The second, 'The social relationship paradox,' concerns questions of personal disclosure and physical proximity (both aspects of Social dynamics) along with emotion (an aspect of Style).

4.5.1. *The papertrail paradox*

When acquaintances meet in public and hold private conversations, they typically behave as if their privacy is inviolable, even in the midst of unknown passers-by. Similarly, when the same acquaintances speak on the telephone, they assume both that the conversation is private (gone are the days of party lines) and that no one is recording the exchange. Furthermore, participants presuppose that the sentential form (including slips of the tongue, ungrammaticality) and content (which might, for example, contain disparaging remarks about some third party) of their conversations will register in their own brains and nowhere else.

When I write the same basic content to the same acquaintance, the presuppositions change. Now there is a durable record of my comments, on the basis of which I might even be arrested or sued.

What about email? As we indicated in Fig. 5 (Email social dynamics), privacy of transmission tends to be presumed, though empirically this is not always a safe assumption (see Weisband and Reinig, 1995). In fact, one author of a handbook on use of the Internet suggests scholars should adhere to the following rule (adapted from his experience as an attorney) when participating in an email discussion list:

Do not put anything in writing...that you would not want to see on the front page of the newspaper or read to a federal grand jury (Durusau, 1996, p. 12).

As we noted in Fig. 6 (Email format), although we generally treat email as if it were ephemeral (like speech), it still is physically writing, and therefore, in principle, reproducible. In fact, some of the early business-oriented email manuals touted the existence of a written record as one of email's virtues (e.g. Siegman, 1983, p. 9).

These linked paradoxes regarding privacy and durability have important legal and social implications. Legally, the issue of whether email is private continues to be fought in the courts (e.g. Addressing the new hazards of the high technology workplace, 1991; Sipior and Ward, 1995), especially where 'private' emails are produced on equipment or carried through networks owned by an institution with which one is affiliated (e.g. as an employee or student). Socially, the papertrail paradox affects all email users, even those without institutional affiliation. As we saw in Fig. 8 (Email style), email tends to be stylistically informal. This informality is reflected not only through such linguistic measures as terms of address or level of humor, but also by the fact that most users exercise only a light

editorial hand (if any at all) on email messages before they are sent. Many of us chuckle at the error-strewn emails we receive from colleagues otherwise noted for meticulously crafted memoranda, and cringe at the mistakes we find in our own messages that we print out for hard-copy files. Resolution of this paradox will depend upon legal trends, technological developments, and evolving social conventions.

Compared with word processing, email is still in its technological infancy. Very few email systems have spell-check options, though as we know from word processing, the availability of spell-checkers (flawed though they be) hardly guarantees their use. In fact, as contemporary written English moves more generally in the direction of editorial *laissez-faire* (see, for example, Baron, 1997), it is unclear whether the potential for easily finding one's errors will be a sufficient deterrent from hitting the 'send' button on email before carefully reviewing and correcting one's written-come-spoken message.

4.5.2. *The social relationship paradox*

Over the past two decades, computing by non-technical users has undergone two profound transformations. The first, during the 1980s, was from computer-as-calculator to computer-as-word-processor. Supported by the emergence of personal computers at home and of office desk-top machines, individuals and organizations largely replaced typewriters with (generally) stand-alone computers whose major function was to produce written documents.

The second transformation, during the 1990s, was to computer-as-medium-for-social-communication. As networking capabilities and online services mushroomed, social functions—from email to listservs to chat rooms—took their place alongside earlier stand-alone activities, including word processing, education, and entertainment (all three of which are increasingly becoming interactive as well). Many students of contemporary computing now view the personal computer as fundamentally a mechanism for social communication (e.g. Rheingold, 1993; Baym, 1995; Jones, 1995).

Email is, in many respects, an ideal tool for building or maintaining social relationships. It has much of the informality of speech, transmission and response time are minimal, and financial costs are either low (e.g. a monthly fee through a network provider) or free (if one has appropriate institutional affiliation). Moreover, email can be sent and received at the convenience of the interlocutors, not bound by personal schedules or time zones, much less physical proximity.

But at the same time that email facilitates social exchange, it also raises a shield between participants that, paradoxically, both facilitates and protects against personal revelation. As we saw in our earlier discussion of self-disclosure, the preponderance of studies of computer mediated communication indicate that interlocutors are more forthcoming with ideas and information when they cannot see or hear one another than when they can. Parents of college students (not living at home) repeatedly confirm this conclusion. Progeny who had little dialogue with their parents while still in high school, who even now rarely write or even phone home, commonly email regularly just to 'chat'. As one father put it,

I can ask [my daughter] questions that she would never answer in person, but she'll sit down and e-mail. . . . The kind of communication we have now is much richer than we had when we were face to face (Salmon, 1997, p. A1).

Another parent speaks of email as providing 'playful, safe intimacy' (Kuttner, 1995, p. A29).

Email offers a comfortable distance from which to 'be oneself' (or even, as often occurs in chat rooms, MUDs, or MOOs, to assume other personal traits). Since no one monitors whether one's 'disclosures' are accurate or not, senders have far more control in managing their side of the social exchange than they would in more physically revelatory circumstances such as a face-to-face encounter or a telephone conversation.

The social-psychological literature on self-disclosure indicates that the social relationship paradox is less a feature of a particular technology than of the channels of information available to participants in the communicative exchange. Short et al. (1976, p. 5) observed that although videophone technology was demonstrated by Bell Laboratories as early as 1927, neither business nor private users flocked to use it, at least in part because it reduced one's privacy shield. Archer et al. (1982) demonstrated that even seeing oneself (though no one else could see you) diminishes the privacy shield as well. In their experiment, subjects were asked to comment either on intimate topics (such as their parents' personalities) or on non-intimate ones (e.g. where they grew up) while sitting alone in one of two cubicles and speaking into a microphone. One cubicle had bare walls; the other contained a large mirror. When discussing intimate topics, subjects in the mirrored cubicle were less likely to enjoy the task, had the longest latency times before beginning their answers, gave the shortest answers, and disclosed less intimate information than those who couldn't see themselves.

Email as we know it affords a high degree of privacy, which, in turn, fosters self-disclosure (see Weisband and Kiesler, 1996). However, new teletechnologies continue to evolve that make additional information channels available (including converting between voice mail and email, and sending real-time video images). In Section 5, we return to the social relationship paradox, exploring the trade-offs between self-disclosure and enriched information streams.

4.6. *Modality choice*

Human communication always involves choices—when to say what to whom and, at least since the development of writing, through what medium. Today, message-senders have a multiplicity of venues available for communicating with others: letters, notes, or memos transmitted by mail or fax; conversation on the telephone or face-to-face; and, of course, email. Assuming that one's place of employment (or one's personal access to technology) doesn't dictate a particular communicative modality, users typically have latitude in choosing what medium is best suited to the task. Among the factors shaping our choices are: