Linguistic Features of Electronic Mail in the Workplace: A Comparison with Memoranda

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Abstract

Email is increasingly replacing many of the functions of workplace memoranda. This study analyzed the linguistic features of email and written memoranda in an academic workplace, a university department in Australia. Ten subjects contributed email and also completed a questionnaire via email on their use of email. The subjects' email was compared to a sample of memoranda provided by two subjects from the same department. The email sample differed markedly from the memoranda in containing more structural reductions, expressive features, greeting and leave-taking formulas, and instances of linguistic innovation. It is argued that: 1) linguistic economy in email is tempered by the need to maintain social (phatic) contact between users; 2) email style tends to be less formal than other varieties of written workplace communication; and 3) email contains features traditionally considered 'oral.'

Introduction

Statistics concerning Internet use at any given time vary according to many factors, including disparities across regions of the world and other demographic characteristics of users such as age and socioeconomic status (see, e.g., Pew Internet & American Life Project, 2005). This variation notwithstanding, statistics on Internet use generally point to a steady growth in the number of users. According to one source, the total world Internet population increased from 6,084,907,596 users in 2000 to 6,845,609,960 users in 2010 (Internet World Stats, 2010). Broadband usage is also increasing, with developing markets such as China and India predicted to drive further growth (European Travel Commission, 2010). Along with the increase in number of users, use of the Internet for interpersonal communication continues to grow.

Among the Internet technologies used for interpersonal communication is *electronic mail (email)*, one of the oldest forms of computer-mediated communication (CMC) (Hafner & Lyon, 1996). In 2000—four years after the study reported in this article was conducted—it was estimated that 90% of Web users connected to the Internet primarily to view and send email (NUA, 2000). Moreover, the number of worldwide email accounts is predicted to increase from over 2.9 billion in 2010 to over 3.8 billion in 2014 (Radicati, 2010). Evidence is inconclusive as to whether social networking services compete with or facilitate email usage—an issue that is further complicated by the integration of email with social networking services (Carr, 2010; European Travel Commission, 2010). Yet despite the importance of email, language specialists have conducted relatively few studies of this form of communication,[2] focusing more often on publicly-available multiparticipant discourse in chat rooms, newsgroups, and discussion forums (e.g., Cherny, 1999; Gruber, 1996; Herring, 1996a; Werry, 1996).

This article reports on the results of a pilot study that analyzes the linguistic features of email and written memoranda in an academic workplace setting. To date, no linguistic study has compared email and memoranda,[3] despite the fact that the former is replacing many of the functions of the latter, as pointed out by Yates and Orlikowski (1993). At the same time, research suggests that email is structurally and stylistically different from other types of workplace communication. For instance, although email and memoranda are both forms of written communication that are typically composed on a keyboard, and both are *asynchronous*—an addressee need not be present to receive messages (LaQuey & Ryer, 1993)—email has been claimed to exhibit features of oral communication (see, e.g., Murray, 1990; Uhlírová, 1994). Certainly email can be used for informal purposes—such as suggesting a lunch date to a colleague—for which it would be inappropriate to write a memorandum. This point is echoed by Yates and Orlikowski (1993), who claim that the "memo genre" was "elaborated" in email in the 1970s to the 1990s. At the same time, they note that email can be used to convey messages that would not typically be handled through memoranda (e.g., a one-word response to a question). They suggest that email composition draws selectively on the memo genre and that some email messages resemble genres other than memoranda, and conclude with a call for empirical research:

> Although some developments in the structural and linguistic features characterizing electronic mail have been noted, without further empirical study it is not clear whether these have become sufficiently widespread or stable within smaller or larger communities to be institutionalized as genres. (Yates & Orlikowski, p. 320)

In order to compare email and memoranda, the present study empirically analyzed a variety of structural linguistic features, including the use of contractions, abbreviations, ellipsis, features relating to grammatical complexity, and phatic communication in the form of greeting and leave-taking formulas. The results show that email and memoranda—even when produced in the same workplace environment—are linguistically different varieties of communication. Several factors are suggested to explain the differences, notably the tendency in email towards linguistic economy, expressivity, and attempts by users to imitate an informal 'oral style.' Email style is also found to be more variable than that for memoranda, a result which is proposed to relate to the relative lack of established norms for email communication.

The remainder of this article is organized as follows. The next section provides theoretical background on linguistic research on CMC, with a focus on the notions of linguistic economy and social expressivity. This is followed by a description of the methods and procedures followed in the present study, and a presentation of the results for the email and memoranda samples. The results are presented in three categories: structural features, phatic features as evidenced by greeting and leave-taking formulas, and linguistic innovation. These findings are then discussed and interpreted in light of competing forces at work in the email usage of professional colleagues who must also interact face-to-face.

Theoretical Background

The university was the first non-military organization to be served by computer networks (LaQuey & Ryer, 1993), and thus even when the data for this study were collected in 1996, the Internet was generally not new to academic researchers. However, despite characteristics that make CMC advantageous as data for linguistic research,[4] linguists were initially "slow to consider computer-mediated language a legitimate object of inquiry" (Herring, 1996a, p. 3). Moreover, until relatively recently (see, e.g., Herring, 2001, 2007), linguists have not taken systematic account of diversity across different forms of CMC. This is important, since computer-mediated language is sensitive to the technological properties of CMC systems, such as the difference between synchronous and asynchronous CMC (Herring, 1996a, 2007; see also Condon & Cech, this issue). Technological influences are additionally compounded by social influences such as the number of participants engaging in the discourse (Baym, 1995; Cherny, 1999).

The temporal difference between synchronous and asynchronous forms of CMC can make it especially difficult to compare linguistic behaviors across CMC systems. For example, Murray (1990) discusses turn-taking in a CMC system that occurs in real-time. However, real-time chat systems constrain turn-taking behavior in specific ways (for example, see Anderson et al., this issue). Thus, it is not clear how, if at all, such research applies to an asynchronous form of CMC such as email.[5]

The temporal aspect of CMC is often linked to the concept of linguistic economy. Early on, Ferrara, Brunner, and Whittemore (1991) and Murray (1990) identified various strategies of economical language use in synchronous CMC, such as ellipsis (in particular, omission of pronouns and determiners) and clippings. Similarly, Werry (1996) points out the common use of abbreviations, ellipsis, and orthographic reduction (e.g., *bb ppls* for *bye bye peoples*) in Internet Relay Chat (IRC), a form of real-time multi-participant Internet text communication that originated in 1988. Similarly, Condon and Cech's (1996a, 1996b) experimental studies comparing face-to-face and synchronous CMC dyadic decision-making interactions found that, overall, although the CMC interactions took longer, they were more efficient and tended to "omit unnecessary linguistic material" (Condon & Cech, 1996a, p. 80). In evaluating a form of synchronous CMC that used a communication protocol known as Interchange, Ko (1996) interpreted the relatively low frequencies of such linguistic features as prepositions and attributive adjectives in terms of the "temporal constraints" that this form of CMC places upon its users.

Condon and Cech (1996a, 1996b), Ferrara et al. (1991), Ko (1996), Murray (1990), and Werry (1996) all studied real-time CMC systems, where the notion of temporality, and the time constraints on real-time CMC users, can be causally related to linguistic economy. In contrast, litte research has empirically evaluated the extent to which such economic strategies occur in a asynchronous form of CMC such as email, where there is less temporal pressure on the message producer in comparison to synchronous CMC (for an exception, see Frehner, 2008).

In other respects as well, computer-mediated language use is sensitive to technological differences among CMC systems. For example, since the CMC system studied in Murray (1988b) provides the sender's user identification name, Murray points out that it is redundant for a user of this system to self-identify linguistically. Similarly, Werry (1996) discusses how pronominal reference is redundant in IRC since "the addresser and addressee are typically signaled in advance of the body of a speaker's utterance" (Werry, 1996, p. 54).

The importance of considering the effects of system features on the CMC user becomes particularly evident in comparing CMC to face-to-face communication. Although the average rate of typing transcription is 33 words per minute, with many professional typists expected to average 60 to 70 words per minute (Human Factors International, 2000), adult conversational speaking rates average 270 words per minute (Calvert & Silverman, 1983, cited in Shipley & McAfee, 2008). Given the relative slowness of the means by which language is transmitted via textual CMC, considerations of linguistic economy may help to explain its structural features, especially when users are trying to type at a "conversational" speed, as in the case of real-time chat (Ko, 1996). Structural reductions, for example, save time and keystrokes and thus speed up the communication process.

Linguistic economy is also of interest in considering certain social properties of CMC discourse. Coulmas (1992) notes that linguistic economy is in constant conflict with the need for comprehensibility. If language use is viewed in terms of a means-ends efficiency, linguistic economy can also be in conflict with the 'expenditure' required to maintain social or phatic contact between participants. Coupland, Coupland, and Robinson (1992) argue for a 'negotiative' perspective of phatic communication, stating that discourse may be oriented to as phatic, contingent upon factors such as interactional goals. In a workplace situation where people must also interact face-to-face, phatic contact may be especially important. This could lead to a conflict with the need for linguistic economy in CMC.

Research suggests that CMC holds a unique place among other types of written workplace communication. Murray (1990) observed the use of linguistic features not typically associated with traditional business letters or memoranda in synchronous CMC. Such features include the use of *right* as a sentence tag, incomplete sentences, and high interpersonal involvement (as demonstrated by personal pronoun use; cf. Chafe, 1985; Chafe & Danielewicz, 1987). Wilkins (1991) also found high levels of involvement, as well as disfluencies such as hesitations and false starts, in synchronous CMC. These are traditionally considered to be features of oral, rather than written, communication.

Ferrara et al. (1991) and Uhlírová (1994) further note the presence of linguistic features in CMC that breach traditional rules of standard written communication. Such features include uncorrected typographical errors, omission of essential punctuation and the use of lowercase in place of uppercase. The tendency towards informal spellings and word usage in CMC, as well as the creative use of capitalization, spelling, and punctuation to convey effects of gesture and tone, has led a number of researchers to comment on the

prevalence of linguistic innovation in CMC (e.g., Crystal, 2001; Johansson, 1991; Uhlírová, 1994; Werry, 1996; Wilkins, 1991). All of these features distinguish CMC from other varieties of written workplace communication.

The 'orality' of email is a particularly complex issue. Herring (1996b) likens the structure of email messages to that of personal letters. Yet other linguists who have described the mode of email as basically 'written' (e.g., Johansson, 1991; Maynor, 1994; Uhlírová, 1994) have also described it as containing linguistic features characteristic of spoken conversation, as discussed above. Crystal applied spoken language criteria to CMC and concluded that the language of the World Wide Web is furthest away from speech, chatgroup and virtual world interactions are closer to speech, "and emails sit uncertainly in the middle" (2001, p. 41). Crystal also found mixed results when applying written language criteria to email. He concludes that CMC is "identical to neither speech nor writing, but selectively and adaptively displays properties of both" (2001, p. 47).

Considerations of orality and literacy in CMC raise the further issue of linguistic norms in CMC. Chafe (1985) argues that norms for written language—as opposed to speech—tend to become "codified and taught" (1985, p. 114). A variety of CMC style guides exist (e.g., Yahoo!, 2010). Furthermore, discussions of appropriate Internet behavior ('netiquette') commonly address linguistic issues such as spelling and grammar (e.g., LaQuey & Ryer, 1993; Strawbridge, 2006). However, as Crystal (2001) notes, there is a lack of consensus among many CMC style guides. Furthermore, as a growing number of people with low levels of English language skills gain Internet access (Cumming, 1995), norms of spelling and punctuation in CMC may be increasingly in flux. In the absence of strong norms, we may expect substantial variation to occur among individual subjects using CMC. In their study, Ferrara et al. noted that "[i]t would be misleading not to mention the vast individual differences between subjects" (1991, p. 27). Examining variation in linguistic features of CMC can highlight areas in which strong norms have yet to be developed.

The majority of research on CMC does not take a linguistic approach. Rather, CMC is often studied in terms of pedagogical (e.g., Campbell, 2002; Walker & Barber, 1999) or psychological approaches (e.g., Kiesler, Siegel, & McGuire, 1984; Riva, 2002). Other major streams of research are communicative (in a more general sense, for example, in considering how, when and why people choose certain media to communicate) or organizational in approach (for an overview of the latter, see Rice & Gattiker, 2000; for an overview focusing on email in organizations, see Wandvogel, 2001). Several observations arising from this larger body of research are relevant to the present study. For example, although addresser and addressee may not be temporally separated in some forms of CMC, spatial separation is the norm. Thus the CMC user's location may be a significant factor in the workplace; for example, Sproull and Kiesler (1991) reported that workers in isolated offices made the most use of question-and-reply files archived on the company computer network.

This latter finding points to the importance of evaluating subjects' backgrounds and the social context in which CMC takes place. For example, gender of users has been found to

make a difference to CMC style in academic discussion forums (Herring, 1993, 1994, 1996b). In an organizational setting in the United States, Sherblom (1988) found that the status of interlocutors and the directionality of communication influenced the use of signatures in email messages: Managers were less likely to sign their names when emailing employees of lower rank. However, Waldvogel found no status or gender differences in the use of email signatures within two New Zealand organizations (Waldvogel, 2001).

Information concerning, for example, subjects' experience using CMC can easily be collected via questionnaire administration. A number of linguistic CMC studies have utilized questionnaires where it has been practical to do so (e.g., Eklundh, 1994; Herring et al., 1992; Herring, 1993, 1994). Yet researchers do not always collect and provide background information on subjects. In their study of 'powerful' and 'powerless' language in small groups of CMC users, the only information provided by Adkins and Brashers (1995) was subjects' gender and the fact that subjects could type more than 40 words per minute. Sherblom (1990) evaluated pronoun use in the departmental email of a manager in a large organization. No information was provided on the subjects apart from the subject's position and ranking in the company, and no information was provided on the company itself (e.g., the amount of time since email had been adopted). The importance of accounting for the technological characteristics of different CMC systems has already been discussed; the evaluation of human factors is equally important. As Herring states: "Separating out the contributions of the medium from those of human users is an important prerequisite to further CMC analysis" (1996a, p. 4).

In the present study, subjects at different campuses of a major Australian university completed a questionnaire about themselves and their email use, and this background information was used to interpret the results of a comparison of linguistic features in email and memoranda. In contrast to linguistic CMC research that describes 'oral' features in real-time CMC, this study evaluates the extent to which such features occur in email. The occurrence of these features is then interpreted in terms of two theoretical premises: 1) the need to strike a balance between linguistic economy and phatic communication, and 2) the use of oral features in CMC to produce a style that is informal and "conversational" in nature. In addition, since the study focuses on CMC use in a workplace environment, it has implications for workplace communication.

Method

Subjects

In this pilot study, 10 subjects (5 males, 5 females) from an academic department of a multi-campus Australian university contributed email messages. The mean age of subjects was 40 years (*SD* = 8.78). Three subjects (S1 - S3) were administrative staff (all female), five subjects (S4 - S8) were academic staff (2 females, 3 males), and two subjects (S9 and S10) were technical staff (both male). Six subjects (S1, S3, S4, S5, S7 and S9) were located at a major metropolitan campus, three subjects (S2, S8 and S10) were located at a major regional campus, and one subject (S6) was located at a minor

regional campus.[6] Only subjects who kept copies of all their outgoing email participated in the study.

Two additional subjects (1 male, 1 female; *M* age = 49, *SD* = 4.24) from the same department contributed university memos to the study. Both subjects were senior academic staff from the major metropolitan campus. These subjects did not contribute any email to the study.

Subjects located at the metropolitan campus were recruited via a face-to-face invitation, while subjects located at regional campuses were recruited via a telephone invitation.

Procedure

Collection of email messages began on April 18, 1996. Subjects contributing email were asked to forward any email messages that they had sent during the period of March 20, 1996 - April 3, 1996 to the investigator's email address. Once a subject's forwarded email was received, the subject received and completed a questionnaire via email (see Appendix). This 18-item questionnaire elicited demographic information and information on the subject's use of and attitudes towards email. During the period in which email was collected, the two subjects contributing memos allowed the investigator access to computer disks containing memos. The most recently-written memos were selected from these disks until samples of approximately 3,000 words had been collected for each subject. The resulting memo sample was large enough to discern basic patterns of usage while allowing the researcher to analyze the sample within the time constraints in effect at the time of the research.

Analysis

The grammar checker of the word-processing program Microsoft Word 6.0 was used to obtain basic grammatical statistics, such as readability scores and use of passive sentences. Further statistics—number of characters/word, number of words/sentence, number of words/message, and number of sentences/message—were derived from the statistics of these grammar checks.

Various linguistic features were examined in terms of relative frequency counts. This included the following features that were viewed as being indicators of linguistic economy, based on the findings of previous research: abbreviation/clipping, use of lowercase in place of uppercase, omission of pronoun, omission of article, omission of forms of the verb *be,* omission of essential punctuation, and omission of existential *there*. In order to examine the use of phatic communication, frequencies of greeting and leave-taking formulas were calculated.

The questionnaire data were coded and analyzed using the statistical program SPSS for Windows. This program was also used to examine the relationships between frequencies of linguistic features and the questionnaire data.

In terms of Herring's (2004) methodological discussion of computer-mediated discourse analysis (CMDA), this study constitutes an example of 'structural CMDA.' It focuses on micro-level units of language structure—e.g., typography, syntax, lexical formation—in order to explore issues of expressivity and orality.

Results

Profile of Subjects Contributing Email

The subjects generally expressed positive attitudes towards their use of email. Seven subjects rated using email as being either 'very enjoyable' or 'extremely enjoyable,' and eight subjects rated email as being either 'very important' or 'essential' to their work at the university. Eight subjects also reported using email either every second day or every day. Seven subjects had been using email for at least three years, had been working for the university department for at least three years, and first began using email through their work at the university. Only one subject used email in a language other than English (Swedish).

Subjects were provided with a list of the recipients to whom they had sent email. The mean percentage of recipients the subjects had met face-to-face was 91.851 (*SD* = 10.942). The majority of subjects (90%) perceived their sample of email as being either 'fairly representative' or 'very representative' of a typical fortnight of their email use. Subjects who contributed more messages to the study tended to rate their sample as more representative (*r*s = .6658, *p* = .036; two-tailed).

Email Sample

A total of 197 email messages was collected, creating a sample of 16,569 words. The mean number of messages per subject was 19.7 (*SD* = 12.99), ranging from 6 messages to 42 messages. The mean number of words per subject was 1,656.9 (*SD* = 928.93).

Before analysis, a number of items were removed from all email messages. These items included headers and any information not deliberately inserted by subjects (e.g., > signs automatically inserted before each line of text by the email application, denoting text that has previously been sent). Any other text that was capable of deletion by the subject was retained, including any text previously written by the recipients of subjects' email. Because recipients' text was retained, the number of words in each message may not reflect the number of words contributed by the subject alone. Since subjects tended to use recipients' text as the basis for a reply, recipients' texts were viewed as a crucial part of subjects' messages (also see Gruber, 1996; Hodsdon-Champeon, this issue; Severinson-Eklundh, this issue).

Only a small number of messages did not concern work-related topics. The majority of emailed recipients were other staff members within the university, as shown in Table 1.

Sender's campus	Receiver's location 1	2	3	4	5	External: Australia	External: Overseas
1	37.4%	39.0%	13%	6.5%	-	0.8%	5.7%
2	41.9%	34.9%	7%	2.3%	2.3%	7%	4.65%
3	48%	24%	20%	4%	-	4%	-

Note. 1 = Major metropolitan campus; 2 = Major regional campus; 3 = Minor regional campus; 4 = Minor metropolitan campus; 5 = Minor metropolitan campus.

Table 1. Relative locations of addresser and addressee in email messages

Only 7.33% of all messages sent were to recipients external to the university. In addition, the hierarchy of 'major' and 'minor' campuses is reflected in the email sample. Of the total email sent from Campuses 1 and 2, the email directed to Campus 3 constitutes only 9.64%. In contrast, of the total email sent from Campus 3, 72% is directed to Campuses 1 and 2. This supports Sproull and Kiesler's (1991) research that suggests that workers in more isolated locations may have a greater need for networked services such as CMC.

Memo Sample

As with the email messages, all headers were removed from the memos before analysis. A total of 71 memos was collected, creating a sample of 6,350 words. One subject contributed 35 memos (3,110 words) and the other subject contributed 36 memos (3,240 words). All memos concerned work-related topics, mainly addressing administrative matters, such as budget issues, committee meetings, and research grants. All memos were addressed to other employees within the university.

Basic Grammatical Statistics of Email and Memos

All email messages were processed by the grammar checker of Microsoft Word. Although statistics of email messages composed according to job type (i.e., administrative staff, technical staff, and academic staff) were calculated, the small sample size made it difficult to draw any generalizations based on these distinctions. A comparison of the basic grammatical statistics of email and memos, as presented in Table 2, was of greater use.

	Memos		Email	
Variable	M	SD	M	SD
Characters/word	4.65	0.21	4.37	0.39
Flesch Reading Ease score	57.45	5.87	76.05	12.38
Percentage of passive sentences	25.50	3.54	3.80	2.39
Sentences/message	4.46	0.05	6.63	5.06
Words/message	88.55	1.75	98.88	58.46
Words/sentence	19.90	0.57	16.41	3.02

Table 2. Grammatical statistics of email messages and memos

The tendency for email messages to have shorter words and sentences is reflected in the substantial difference between scores for the Flesch Reading Ease formula. This formula uses the variables of word length—calculated in syllables—and sentence length to produce scores on a scale of 100 ('very easy') to 0 ('very difficult'). Although readability formulas provide a convenient and easy method of predicting text comprehension, they are limited in their ability to assess the full extent of reader comprehension. Numerous critics have argued the failings of readability formulas, such as the tendency of formulas not to address the abilities of individual readers. As Goodrich notes, "readability is more than a facet of a text; it is the fusion of a text with its reader" (1989, p. 119).

Yet, as observed by Klare (1984), most of such critics fail to take account of the basic purpose of a readability formula. A readability formula is best viewed as a predictive device providing quantitative, objective estimates of reading difficulty. According to descriptions of Flesch score ranges, memos would be categorized as 'Fairly difficult,' while email would be categorized as 'Fairly easy' (Flesch, 1948).

A much greater percentage of passive sentences was also recorded in the memos as compared to the email. Since passive constructions often function as a marker of a formal, written register (Chafe, 1985; Chafe & Danielewicz, 1987), this finding suggests the use of a more informal, conversational style in email. Finally, although the email messages tended to be longer than the memos, it should be recalled that some email messages included text written by both the recipient and subject.

Linguistic Features of Electronic Mail and Memos

On the basis of previous linguistic literature on 'oral' features of CMC (reviewed above in the Theoretical Background section), the following list of features was hypothesized to have higher frequencies in email than in memoranda:

- abbreviation/clipping [excludes commonly abbreviated names of departments and organizations (e.g., ITS - Information Technology Services) and popular computer abbreviations which have generally superceded the full form (e.g., DOS - Disk Operating System)]
- use of lowercase in place of uppercase
- omission of pronoun
- omission of article
- omission of forms of the verb *be*
- omission of essential punctuation (e.g., absence of a sentence delimiter such as a full-stop)
- omission of existential *there* [absence of *there* in a clause in which *there* functions as a grammatical subject and is combined with a form of the verb *be* in its verb phrase, such as *There was no one waiting* (Quirk, Greenbaum, Leech, & Svartvik, 1985)]
- use of contraction
- use of parenthesis [excludes incidences where parentheses form part of a title, such as *Bachelor of Arts (Honours)* or a reference citation using the 'author-date' system, such as *Smith (1991)*]

- use of exclamation mark (in the case of repetition of exclamation marks, *!!!* is counted as one use, not three uses)
- repetition of letters or punctuation for emphasis (e.g., *see yaaaaaaaa; is that OK??????*)
- use of capitalization for emphasis (excludes the use of capitals for a heading)

Variation Among Subjects

Many of the subjects' samples varied substantially in terms of number of words. However, S1, S6, S7 and S9 all provided samples of a relatively similar number of words. The mean number of words for these four subjects was 2,296.75 (SD = 277.86). Although the average number of messages provided by these subjects varied more substantially (M = 28.75, SD = 13.55), this combination of subjects provided the most stable samples (in terms of number of words and messages) for comparative purposes.

The frequencies of linguistic features in the email of S1, S6, S7 and S9 are shown in Table 3. Normalized frequencies—occurrence per 2,000 words—are shown. Only text written by subjects—not recipients—was analyzed. Greeting and leave-taking formulas were also excluded from this analysis.

Type of feature	S1	S6	S7	S9
Abbreviation/clipping	19.86	14.38	23.00	5.85
Use of lowercase instead of uppercase	16.25	-	137.98	13.65
Omission of pronoun	4.51	1.80	26.70	4.88
Omission of article	11.74	2.70	6.68	-
Omission of forms of verb *be*	1.81	1.80	8.90	3.90
Omission of essential punctuation	34.31	6.30	20.77	5.85
Omission of existential *there*	-	0.90	21.51	-
Use of contraction	11.74	8.99	17.80	1.95
Use of parenthesis	9.03	11.67	8.16	4.88
Use of exclamation mark	0.90	3.60	4.45	14.63
Repetition of letters or punctuation for emphasis	0.90	2.70	8.90	1.95
Use of capitalization for emphasis	0.90	0.90	5.93	4.88

Table 3. Normalized frequencies (per 2,000 words) of linguistic features in four subjects' email

Substantial differences among the subjects' frequencies occur for many of the linguistic features (e.g., use of lowercase instead of uppercase, omission of articles). In particular, S7, a female academic staff member at a major metropolitan campus, has far greater frequencies than the other three subjects of a number of features: use of lowercase instead of uppercase, omission of pronouns, omission of forms of the verb *be*, use of contractions, repetition of letters or punctuation for emphasis, and omission of the existential *there*.

The four subjects used most of the linguistic features selected for analysis. When all 10 subjects were considered, the number of linguistic features used was significantly correlated with the number of words in subjects' samples (rs = .7878, p = .007; two-tailed). Thus, subjects providing fewer words to the study also tended to use fewer of the target linguistic features. Surprisingly, however, the number of linguistic features that subjects used was not significantly correlated with how often they reported using email. Thus, it is possible that subjects with shorter samples simply did not provide a sufficient number of words for use of more of the linguistic features to occur. If this is the case, it would lend support to the notion that higher frequencies of the selected linguistic features typically occur in email. A comparison of email and memos was conducted to evaluate this proposition more fully.

Comparison of Memos and Email

The relative frequencies of the selected linguistic features in memos and email are shown in Table 4. For purposes of comparison, relative frequencies are normalized in terms of occurrences per 6,350 words, 6,350 words being the length of the memo sample. Based on the discussion above concerning sufficient sample length, only subjects contributing email samples of over 2,000 words (S1, S4, S6, S7 and S9) were included in this table. As with the above analysis, only text written by subjects—not recipients—was analyzed. Greeting and leave-taking formulas were again excluded. Higher relative frequencies are found in the email sample for most of the linguistic features. As might have been expected, memos recorded no uses of many of the features breaching rules of standard written business communication, such as use of lowercase instead of uppercase and repetition of letters or punctuation for emphasis. Higher frequencies are recorded for the email sample in terms of all forms of ellipsis. Linguistic features linked with lesser formality—contractions and use of exclamation marks—also occurred with higher frequency in email.

Type of feature	Memos	Email
Abbreviation/clipping	31	41.83
Use of lowercase instead of uppercase	0	115.17
Omission of pronoun	1	26.34
Omission of article	11	14.46
Omission of forms of verb *be*	0	12.91
Omission of essential punctuation	1	42.35
Omission of existential *there*	0	15.49
Use of contraction	1	38.22
Use of parenthesis	39	23.76
Use of exclamation mark	1	16.53
Repetition of letters or punctuation for emphasis	0	3.62
Use of capitalization for emphasis	0	7.75

Table 4. Normalized frequencies (per 6,350 words) of linguistic features in memos and email

It was expected that email subjects would use more capitalization for emphasis, since the email application that the subjects used did not allow for bold, italics, or underlining. While no memos used capitalization for emphasis, only one memo used any form of graphic emphasis at all—the depiction of a deadline in bold type.

Contrary to expectation, more uses of parentheses were recorded in the memo sample. A more detailed examination of this feature is required, focusing on what item(s) are contained in parentheses (e.g., adjective, independent clause, etc.) and what purposes parenthetical comments serve. The lower frequencies of parentheses in email may be linked to linguistic economy, since the use of parentheses requires more keystrokes than, say, a dash.

In general, the higher frequencies of the majority of linguistic features in email can be linked to the use of a more informal, 'oral' style. For example, contractions are more commonly found in less formal varieties of spoken communication, such as personal conversations, than in more formal varieties of written communication, such as academic papers (Chafe & Danielewicz, 1987). Abbreviations/clippings and use of lowercase instead of uppercase can also be linked to informality. In addition, the use of exclamation marks, repetition of letters or punctuation for emphasis, and use of capitalization for emphasis imitate the effects of prosody in spoken language, demonstrating that 'expressivity' also has a significant place in email style.

The majority of the linguistic features can also be linked to linguistic economy. Features such as the use of lowercase instead of uppercase and abbreviations/clippings all reduce the number of keystrokes typed. As has already been discussed, linguistic economy interacts (and may conflict with) the needs of phatic communication. To explore this connection further, an examination of greeting and leave-taking formulas was conducted.

Greeting and Leave-taking Formulas in Email

To the extent that greeting and leave-taking formulas in email are features of phatic communication, their occurrence would support the notion that email has a social purpose. Frequent and/or lengthy formulas could further be taken as evidence that social and/or expressive needs sometimes outweigh the principle of linguistic economy. Tables 5 and 6 depict the frequencies of greeting and leave-taking formulas used by subjects in email messages.

Type of greeting	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10[a]	Total
No greeting	15	13	1	7	-	9	5	-	16	-	66
Addressee's 1st name	16	3	5	7	3	13	2	1	13	1	64
Hi + addressee's first name	6	9	-	1	-	-	2	5	-	2	25
Dear + addressee's 1st name	5	1	-	4	-	-	2	-	2	-	14
Hi + addressee's nickname	-	-	-	-	4	-	-	2	-	-	6
Addressee's nickname	-	1	-	-	3	1	-	-	-	-	5
Dear + collective name for addressees	-	-	-	-	-	-	-	-	5	-	5
Collective nickname for addressees	-	-	-	-	-	3	-	-	-	-	3
Hi + collective nickname	-	-	-	2	-	-	-	-	-	-	2
Hi	-	-	-	-	-	-	-	-	-	1	1
Hey + addressee's nickname	-	-	-	-	-	-	-	1	-	-	1
Hey + addressee's 1st name	-	-	-	1	-	-	-	-	-	-	1
Addressee's 1st name + surname	-	-	-	-	1	-	-	-	-	-	1
Dear + 1st names of multiple addressees	-	1	-	-	-	-	-	-	-	-	1
# messages contributed	42	28	6	22	11	26	11	9	36	6	197

[a] Capitalisation, punctuation, spelling alternatives (e.g., thankyou, thank you) and use of line breaks vary within some greeting and leave-taking formulas. In addition, two messages (from S10) were omitted from the evaluation of greeting and leave-taking formulas, since they contained only commands for subscribing to and receiving information from a discussion list.

Table 5. Frequencies of greeting formulas used by subjects in email

Redundancy and Phatic Communication

Both greeting and leave-taking formulas are commonly omitted by subjects. Since all email messages contain a memo-style header—the minimal information in such a header comprising *To:*, *From:,* and *Subject:* details—greeting and leave-taking formulas may be viewed as redundant by subjects. The automatic insertion of an email signature (a personalized 'signature' typically containing the addresser's name, title, and organization) may also influence the omission of leave-taking formulas. Two of the three subjects who used an automatic signature consistently omitted leave-taking formulas. The omission of a greeting formula was distributed more evenly among subjects than the omission of a leave-taking formula. In the latter case, one subject (who used an email signature) accounted for 62.9% of omissions. Since email replies can contain text from the addresser and addressee's previous messages, the use of a greeting formula may be viewed as especially redundant in replies.

Given the numerous incentives for omission of formulas provided by the email medium, it is surprising that formulas were omitted in only about one-third of the messages.[7] Greeting formulas were omitted on 66 occasions but included on 129 occasions. Leave-taking formulas were omitted on 62 occasions but used on 133 occasions. Nor did the

inclusion of text from a previous message or forwarded text greatly reduce the number of greeting formulas, with 42.37% of such messages still including a greeting formula.[8] In the present study, such formulas clearly serve a phatic purpose. A number of extended leave-taking formulas were used (e.g., All the best for Easter + have fun + *addresser's 1st name*). The fact that there are many more types of leave-taking formulas than greeting formulas may be related to the fact that subjects tended to incorporate a larger variety of sentiments (e.g., expressions of thanks, wishes for luck) into their leave-taking.

Type of leave-taking	S1[a]	S2	S3	S4	S5	S6	S7	S8[a]	S9	S10[a]	Total
No leave-taking	39	7	1	5	1	6	-	-	-	3	62
Addresser's 1st name	-	-	1	9	3	1	3	2	1	-	20
Addresser's 1st name + surname	-	-	-	-	1	-	-	-	26	-	27
Addresser's nickname	-	16	-	-	-	-	-	-	2	-	18
Addresser's 1st initial	-	-	-	-	-	12	-	-	-	-	12
Thanks + addresser's 1st name	-	3	-	2	-	-	-	-	-	-	5
Addresser's 1st name + Last initial	-	-	-	-	-	-	-	5	-	-	5
Love + addresser's 1st name	-	-	-	-	3	-	-	-	-	-	3
Regards + addresser's 1st name	-	-	2	1	-	-	-	-	-	-	3
Many thanks + addresser's 1st initial	-	-	-	-	-	3	-	-	-	-	3
Best wishes + addresser's 1st name	-	-	-	-	-	-	3	-		-	3
Regards + addresser's 1st name + surname	-	-	1	-	-	-	1	-	-	-	2
Love + 1st initial	-	-	-	-	2	-	-	-	-	-	2
Thanks + superior's 1st name	-	1	1	-	-	-	-	-	-	-	2
Ta + addresser's 1st initial	-	-	-	-	-	2	-	-	-	-	2
Seeya + addresser's 1st name	-	-	-	2	-	-	-	-	-	-	2
Humorous mock email signature	-	-	-	-	-	-	-	-	2	-	2
Thank you + addresser's 1st name	-	1	-	-	-	-	-	-	-	-	1
See you + addresser's 1st name	-	-	-	-	1	-	-	-	-	-	1
Good luck + addresser's 1st name + surname	-	-	-	-	-	-	-	-	1	-	1
Ta	1	-	-	-	-	-	-	-	-	-	1
See you + addresser's 1st initial	-	-	-	-	-	1	-	-	-	-	1
See y'orl + addresser's 1st initial	-	-	-	-	-	1	-	-	-	-	1
Thanking you in anticipation	1	-	-	-	-	-	-	-	-	-	1
Cheers + addresser's 1st name	-	-	-	1	-	-	-	-	-	-	1
Cheers	1	-	-	-	-	-	-	-	-	-	1
Addresser's nickname + :)	-	-	-	-	-	-	-	-	1	-	1
Thank you + email signature	-	-	-	-	-	-	-	-	1	-	1
Thanks + Addresser's 1st name + Last initial	-	-	-	-	-	-	-	1	-	-	1
Hope it's going well + addresser's 1st name	-	-	-	1	-	-	-	-	-	-	1
Much appreciated + addresser's 1st name	-	-	-	1	-	-	-	-	-	-	1
All the best for Easter + Have fun + addresser's 1st name	-	-	-	-	-	-	-	-	-	1	1

Thankyou again + addresser's 1st name + surname	-	-	-	-	-	-	-	-	1	-	1
Hang in there + addresser's 1st name + surname	-	-	-	-	-	-	-	-	1	-	1
Best wishes + 'speak' soon + addresser's nickname	-	-	-	-	-	-	1	-	-	-	1
Hope it works + best + addresser's 1st name	-	-	-	-	-	-	1	-	-	-	1
Talk soon + love + addresser's 1st name	-	-	-	-	-	-	1	-	-	-	1
'Speak soon' + love + addresser's 1st name	-	-	-	-	-	-	1	-	-	-	1
Many thanks + addresser's 1st name + surname	-	-	-	-	-	-	-	1	-	-	1
No. of messages contributed	42	28	6	22	11	26	11	9	36	6	197

[a] Subject always uses an email signature

Table 6. Frequencies of leave-taking formulas used by subjects in email

Variety and Informality

In comparison to the range of greeting and leave-taking formulas used in traditional business letters, email exhibits a great deal of formula variety. However, many formulas were used by only one subject. For example, only S6 refers to himself using his 1st initial, only S8 uses first name + last initial, and it is mainly S2 who signs with a nickname. Thus, as with the analysis of linguistic features in their email (see Table 3), subjects vary widely.

Due to the small sample size, it is difficult to evaluate the formula variation in email in terms of particular characteristics of the subjects. For example, it might be postulated that females, given their traditionally greater affective expressivity (Balswick & Avertt, 1977), would be more likely to use *Love* in leave-taking formulas. Yet the two subjects using *Love* in their leave-taking formulas were a male and a female. A larger study could take gender of subjects more systematically into account.

Despite the workplace setting, a great deal of informal formulas are used, as demonstrated by the high use of nicknames and such terms as 'hi' and 'see you'. Informal formulas (mainly *Addressee/Addresser's 1st name* used in greeting and leave-taking, and formulas using *hi*) are more frequent than formal formulas (e.g., *Dear*). There was little use of traditional business letter leave-taking formulas such as *Yours sincerely,* and formulas used in more formal circumstances such as *Thanking you in anticipation* constitute only a minor percentage of the total number of formulas in the email. This preference for informality could well be linked to the high mean percentage of addressees with whom addressers also have face-to-face contact (91.85%).

Linguistic Innovation in Email

A final set of observations supports previous research concerning the prevalence of linguistic innovation in CMC. Some examples of lexical innovation are shown below:

> would you "2nd" the application?
> I'm running out of $$$$$$$$$$$$$$$$$$$$
> LabMan (to refer to a 'Lab Manual')
> I am contacting you to carry out a silicone vote (i.e., a straw vote you do via e-mail)
> Woddayerreckon?

These examples illustrate word coinage through clipping (*LabMan*), redefinition of an existing term (*silicone* [sic] *vote*), and typographic and orthographic innovation in representing lexemes (e.g., *2nd*). Such innovation was not found in the memo sample. It is notable that this play with language occurred in the email sample despite the workplace setting. Moreover, all of the above examples of linguistic innovation occurred in discussion of work-related topics. Such findings further emphasize the more casual nature of email style, and distinguish email from other forms of written workplace communication.

The findings of the combined analyses are summarized in Table 7.

	Email	Memoranda
Structural reduction (e.g., abbreviation, contraction, ellipsis)	Frequent	Infrequent
Expressive features (e.g., exclamation marks, repetition)	Frequent	1 instance of exclamation mark; other features not found
Greeting and leave-taking formulas	Present in 2/3rds of messages	Not found
Linguistic innovation	Common	Not found
Overall style	Informal	Formal

Table 7. Summary of findings

Discussion

This study compared email exchanged in the workplace with another variety of written work-related communication, memoranda—two types of communication that have been claimed to be functionally and historically related (Yates & Orlikowski, 1993). The email was shown to differ considerably from the memoranda with respect to a number of linguistic features.

The use of features of linguistic economy particularly distinguishes the email from the memos. At a broad level, this occurs in terms of basic grammatical statistics, where the

tendency for email messages to have shorter words and sentences was reflected in a substantial difference between Flesch scores. More specifically, ellipsis, abbreviation/clipping, and the use of lowercase instead of uppercase all reduce the number of keystrokes typed.

Although fewer time constraints operate on email users compared to real-time CMC users, strategies of linguistic economy are highly prevalent in email. Surprisingly, the incidence of copula, pronoun, and article deletion in the present study actually exceeds that in Ferrara et al.'s (1991) study of a form of synchronous CMC. At the same time, the email messages contain longer words and use fewer contractions than the synchronous chat analyzed by Ko (1996), while at the same time being more reduced in these respects than Ko's sample of written documents.[9] These findings are consistent with Crystal's (2001) observation that "emails sit uncertainly in the middle" between speech and writing.

At the same time, the presence of reduced or speech-like features cannot be explained solely in terms of linguistic economy. For one thing, as email is asynchronous, email message producers are theoretically under no greater time constraints than writers of memoranda. Furthermore, as mentioned above, not all of the linguistic features observed in the study saved users time; some, such as those conveying expression or emphasis, involved repetition of letters or punctuation.

I propose that linguistic economy in the email sample was tempered by the need to maintain social contact among participants. An example of this is the use of multiple synonyms for emphasis in email, as shown in the following sentence which occurred in the sample: *We have already told SC how obliging and helpful and more than ready and willing you are and wanting to do anything she requests post haste!!!* Despite the redundancy of using repeated synonyms such as *helpful* and *more than ready and willing*, their social importance in expressing humor outweighs the inefficiency of having to use extra keystrokes.

The importance of phatic communication is particularly evident in the use of greeting and leave-taking formulas. While omission of these formulas occurred regularly, formulas were still used by all subjects, and formulas were included on more occasions than they were omitted. A variety of extended leave-taking formulas was also used. Clearly, linguistic economy was not the overriding concern in such usage.

The ability to establish and maintain social contact through email is in keeping with the cooperative nature of the Internet as an environment that supports many communities of computer users. In the context of a workplace—where addresser and addressee are more likely to know each other—the need to maintain good social relations is high, to the extent that social contact among workers is valued. The majority of the email in the present study was directed to internal staff members of the university, and the majority of recipients were known to subjects via face-to-face conversation. The frequent use of greeting and leave-taking formulas in this study can be viewed as an effort to maintain cooperative workplace relations.

The majority of the linguistic features that differentiate email from memos can be considered to function as markers of an informal style that aims to be conversational in tone. As noted above, contractions and a lack of passive constructions are characteristic of informal varieties of oral communication (Chafe, 1985; Chafe & Danielewicz, 1987). Exclamation points and capitalization represent the effects of prosody in speech. Informal greeting and leave-taking formulas also serve as markers of a conversational style.

A possible objection could be raised at this point that level of formality relates to communicative function, and that although the functions of memoranda and emails overlap, they are not identical. In general, the memos in the study function as formal organizational documents. The vast majority of email messages in the study also fulfilled an organizational function. However, it might be argued that the email messages relating to personal matters, for example, do not serve this function, and that this factor contributes to the informality observed in the email sample. This is a complex issue. Email messages considered not to serve an organizational function could have been eliminated from the sample. However, this would have produced a sample that did not reflect the full range of email use in this particular setting. Also, it would also have been difficult to separate organizational from social messages. How, for example, should we classify the email from an administrative staff member to an academic staff member containing an organizational document along with the message *Here they are! Don't say I don't give you anything!!*? In this example, informality is present even in a work-focused email. Similarly, subjects freely used linguistic innovation in discussing work-related topics in email. Thus, even when their functions overlap, email tends to be more informal than memos.

Another concern is the possibly confounding effect of face-to-face familiarity on the analysis. The informal style of email that has been noted could have been caused by the fact that these particular subjects knew most of their addressees. In other words, informality might have been an effect of familiarity, rather than of email use. This possibility cannot be ruled out. Further research using corpora derived from subjects who have not met recipients face-to-face would provide an important comparison to this study.

A substantial level of variation across individual subjects occurred, in terms of both linguistic features and greeting and leave-taking formulas. On the one hand, given the small sample size, variation limits the generalizability of the findings. On the other hand, the high degree of variation is itself an interesting finding. Although conventions of email use have emerged since 1996, at the time the data in this study were collected, email was still a relatively new form of communication in universities in comparison with memoranda. In the absence of strong norms, it stands to reason that 'idiostyles'—individuals' own styles—would take precedence. Further, the evidence of linguistic innovation in the email sample attests to a willingness to experiment with language that may have been fostered by the relative novelty of the medium (Hale & Scanlon, 1999).

In addition to issues already discussed, two further limitations to this study must be acknowledged. First, the small sample sizes were insufficient in some cases to show the

occurrence of the target linguistic features. The number of linguistic features used in the email was significantly correlated with the number of words in subjects' samples; the larger the samples, the more different features were found. Because of this limitation relating to sample length, only subjects contributing email samples of over 2,000 words were included in the comparison of linguistic features of emails and memos. Second, while the subjects who contributed memos were people in the same environment as the subjects who contributed emails and were influenced by similar workplace norms and expectations, they were not the same individuals. It is possible that the memo writers would have produced more formal email than the email writers, or that the email writers would have written less formal memos than the memo writers. A larger study in which the same individuals provide communication in both media is desirable to address these limitations.

Conclusion

This study suggests that email style is influenced by a combination of social and economical factors. This style tends to be less formal than other varieties of written workplace communication and to contain features traditionally considered 'oral' or speech-like. In studies of synchronous chat, speech-like features are typically claimed to result from the temporal constraints of the medium (e.g., Ko, 1996; Werry, 1996). However, email production is no more temporally constrained than the production of memoranda, and thus the prevalence of features such as structural reduction must be explained in social, rather than in strictly technological, terms. The explanation proposed in this article is that email users seek to imitate spoken conversational style to express a friendly, casual orientation towards their addressees. They are especially motivated to do so in the workplace environment of the present study, in that their addressees are co-workers with whom they also interact face-to-face.

It was also found that the email messages in this study were more readable than the memoranda, as measured by Flesch reading scores. In an observation made at a time prior to the popularization of the Internet, Klare noted the increasing amount of reading required today "in our technological society" (1984, p. 681). The Internet contributes significantly to this situation by making an increasing amount of information accessible to readers, thereby increasing the expectation that users will read more. Users are also expected to produce information for others more rapidly. These dual requirements of modern life—and especially, of the modern academic workplace—may help to explain why email shows evidence of temporal pressure towards linguistic economy and why email is more readable than memoranda. On the one hand, academic users are often in a hurry when they type and send email messages. On the other hand, they may have learned from experience that a more readable message—one that is clear, uses shorter sentences with active (rather than passive) syntax, and contextualizes the content by including quoted portions of the previous message—is more likely to be read and to receive a response in an environment in which many messages compete for the addressee's attention. From this perspective, email exchange can be seen as a cooperative process not just in maintaining social relations, but in facilitating information transfer and processing.

The linguistic features of email messages reflect both types of communicative purpose. Users produce email that is more readable and more economical than memos, while retaining important social interactional features. These characteristics contribute to the creation of a variety of communication that, while written in substance, has a more informal, conversational flavor than other forms of workplace writing.

Notes

1. Address correspondence to tom@tomcho.com
2. An exception to thistrend is Baron (1998).
3. For an early study by a linguist in a workplace setting that compares medium choice among email, synchronous chat, telephone, and face-to-face meetings, see Murray (1988a).
4. Such advantages include the online availability of large amounts of CMC, the ease of downloading large corpora of computer-mediated language without requiring physical transcription of the data, and the suitability of these data for analysis using computer software (Cho, 1996; Herring, 1996a, 1996b).
5. See Condon and Cech (this issue) for research that addresses this question systematically.
6. ‘Major’ and ‘minor’ are defined in terms of student load, course enrolments, and number of staff positions (Deakin University, 1995).
7. Cf. Herring (1996b), who found that greeting formulas in public email discussions were omitted in 87% of the messages in her sample, and ‘complimentary closes’ were omitted in 98% of messages, although most of the messages were signed with the sender's name. Herring interprets the fact that users signed their names as evidence that they were treating their email messages like written letters. The fact that they did not use greeting and leave-taking formulas might further be taken to suggest a difference in degree of sociability between public email among strangers and private email among face-to-face acquaintances.
8. However, the small sample size makes it difficult to form any generalizations, as only 59 messages included previous text or forwarded text.
9. The average length of words in the email sample was 4.37 characters, compared to 4.1 for Ko’s chat and 4.9 for his written documents (cf. the memoranda in this study, with words at 4.65 characters). Similarly, the average number of contractions per 1,000 words for the email sample, Ko’s chat and Ko’s written documents were 5.9, 7.0 and 0 (cf. .1 for the memoranda), respectively. In these measures, the memoranda pattern like the formal written documents in Ko's study, and the email is intermediate between synchronous chat and formal writing.

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Appendix: Questionnaire Administered to Subjects Providing Email

QUESTIONNAIRE

GENERAL INFORMATION

Please type in the appropriate answer after the question.

1. Name:
2. Age:
3. Sex:
4. Highest educational qualification obtained:
5. Position at _____ University:
6. Home campus:
7. How long you have worked for the School of _____:
8. Country of birth:
9. Do you use e-mail in any languages other than English? If yes, state language(s):

INFORMATION ABOUT YOUR E-MAIL USE

Please type in the appropriate answer after the question.

10. How did you come to use e-mail (e.g., for work at _____ University, personal use at home)?

Please type the most appropriate response (e.g., a, b, c, etc.) after each question. Type one letter only.

11. How long have you been using e-mail?
    a. Less than 1 year
    b. 1-2 years
    c. 3-4 years

d. 5-6 years
e. 7 or more years

12. How often do estimate you would use e-mail (either sending messages or reading messages received)?
a. Every day
b. Every second day
c. Two or three times a week
d. Once a week
e. Less than once a week

13. How important do you think e-mail is in the carrying out of your work at the School of _____?
a. Could not be more important- Essential
b. Very important
c. Not very important
d. Not important at all
e. Unsure

14. How enjoyable do you find using e-mail?
a. Extremely enjoyable
b. Very enjoyable
c. Not very enjoyable
d. Not enjoyable at all
e. Neutral

Please type the most appropriate response(s) (e.g., a, b, c, etc.) after the question. You may type more than one letter.

15. For what purposes do you use e-mail?
a. Requesting work-related information
b. Sending work-related information
c. Correspondence with personal friends
d. Requesting information for personal use (e.g., hobby, personal interest)
e. Sending information for personal use (e.g., hobby, personal interest)
f. Subscribing to an e-mail discussion list/newsgroup
g. Other- please specify:

QUESTIONS ABOUT THE INFORMATION YOU HAVE ALREADY PROVIDED IN THE STUDY

16. Contained in the list of people shown below are the e-mail addresses of some people who you have sent mail to and received mail from. If you have NEVER met any of these people face-to-face, please indicate by placing an X in front of the appropriate person's name.

17. How representative do you think the e-mail you forwarded for the study is of a 'typical' fortnight of your e-mail use? Please type the most appropriate response (e.g., a, b, c, etc.) after this question.

a. Very representative
b. Fairly representative
c. Not very representative
d. Not at all representative
e. Unsure

18. Do you have any further comments regarding the study or your e-mail use?

Please return this questionnaire by e-mailing it to _____ by Friday 3rd June. Thank you for your participation in the study.

Biographical Note

Formerly an honours student in linguistics, Tom Cho [tom@tomcho.com] is now a fiction writer. He has a Ph.D. in Professional Writing from Deakin University in Melbourne, Australia, and his first fiction book, *Look Who's Morphing*, was released in 2009.