The Time Course and Pace of Email Collaboration

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Introduction

Collaborative theories of communication (e.g. Clark, 1996) show that conversations have three phases: entry (committing to interact), body (main topic), and exit (disengaging). These phases consist of ritual expressions coordinating entry into (e.g. pre-requests, greetings) and exit from (e.g. well-wishing, continuity) conversation. Another important aspect in communication is accumulation of common ground (Clark, 1996). When people interact, they presuppose shared knowledge and beliefs which allow them to coordinate their conversation. As conversation proceeds, common ground is constantly updated and increased.

We explore these issues in email communication, which is different from face-to-face communication in at least three ways. First, the pace (Dix, 1992) of email is different. Since email is an asynchronous medium, a conversation (a "thread" composed of several "messages") may take place over a long period and be interleaved with other activities. Under these conditions, do people still accumulate common ground like in face-to-face communication?

Second, are email messages analogous to turns in face-to-face conversation? If they are, they should not have entry and exit phases, except for the first and last message. But they often do. When do interactants use entry and exit phases? A possibility is that entry and exit phases may get shorter or even disappear when pace increases.

Third, email has been identified by sociolinguists as a mix between written and oral language (Baron, 1998). But the oral or written nature of email may also vary as a function of the interaction. Interactions may become more "oral" and less "written" over time. An indicator of "orality" is shorter sentence length (Biber, 1988).

For the present study, we analyzed naturally-occurring threads of email conversations. We first examined whether email users accumulate common ground. If they do, messages should become shorter over the course of a thread. We then investigated entry and exit phases. We expected that the higher the pace of a thread (i.e. the more frequent messages are within a given time frame), the more the conversation would resemble face-to-face interaction. Thus entry and exit phases would become shorter and possibly disappear. Finally, we investigated whether participants moved from a "written" to an "oral" style during the thread, using sentence length as an indicator of orality.

Method

Forty-three email threads were collected from volunteers. Conversations were complete professional, study or leisure tasks on which pairs collaborated; they did not know each other well and threads had at least five messages. For each thread, we computed the number of messages, the number of words per message, the number of words of each message's entry and exit phases, time between each message, and the mean sentence length for each message.

Results and discussion

First, messages got shorter as the thread proceeded, indicating accumulation of common ground. For each thread, we correlated message position and number of words. We then used meta-analytical techniques to compute the aggregated correlation, which was negative and significantly different from zero ($r = -.36$).

Second, to operationalize pace, we compared messages written less than a day after the preceding message (i.e. same-day responses) ($n = 197$) and after more than a day (i.e. next-day responses) ($n = 94$). Entry phases were dropped in 20% of same-day responses, versus only 2% of next-day responses, $\chi^2[1, N = 291] = 21.83$, $p < .0001$. They were shorter for same-day responses than for next-day responses: 2.8 words vs. 4 words, $F[1, 289] = 4.5$, $p < .05$. Exit phases were dropped in 7% of same-day responses versus 0.3% of next-day responses, $\chi^2[1, N = 290] = 7.9$, $p < .01$. They were also shorter for same-day responses: 10.4 words vs. 15.4 words, $F[1, 289] = 8.85$, $p < .01$.

Third, messages became more "oral" over the course of a thread: mean sentence length was significantly negatively correlated with message position (aggregated $r = -.22$).

Thus, email may evolve from a formal, "written" communication medium to an informal, "oral" medium over the course of an interaction, also depending on how high the pace of interaction is. This highlights the importance of taking into account collaborative aspects of language use.

References

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