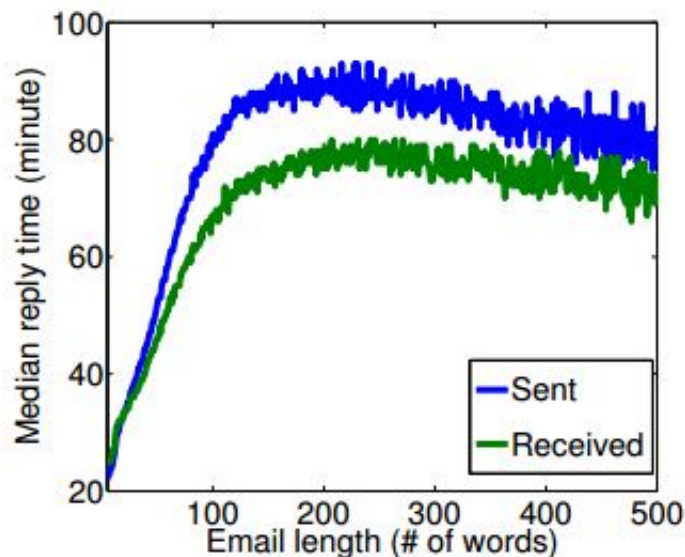


Researchers send out an extensive look into email behavior

April 13 2015, by Nancy Owano



Correlation between time to reply and length of reply for outgoing and incoming emails for dyadic conversations. There is a strong correlation till the length of 200 words (more than 83% of all replies). Credit: arXiv:1504.00704 [cs.SI]

A large-scale study of email habits has turned up some insights about how we use email. Researchers were from Yahoo Labs in Sunnyvale, California and Barcelona, as well as from University of Southern California SC Information Sciences Institute. The researchers revealed a number of mail strategy behaviors.

They have not been the first research team to examine users processing

emails—serially or answering only the important messages first, for example. Difficulties for research purposes, however, have been studies with relatively small sample sizes and, said the authors of the present study, studies limited by methodology to answering qualitative questions about email behavior. In the present study, mail from more than 2 million participants was studied with 16 billion messages over months.

Researchers tracked details such as age and identities of senders and recipients, subject lines, when the emails were sent, length, number of attachments and the devices from where the emails were checked or sent. They posed numerous paths to follow in order to find patterns in behavior: How many email conversations do people have? How long are these conversations and how do they end? When do people respond to a message in a [conversation](#)? Do they adapt their replies to the behavior of their conversation partner?

They chose a random subsample of Yahoo Mail users worldwide who have significant interactions with each other, sending at least five replies in each direction. For privacy and policy reasons, the dataset included messages belonging exclusively to users who voluntarily opted-in for such studies. To minimize the effect of spam, they did most of their analyses on dyadic email exchanges between two users who had exchanged at least five emails with each other.

Developers can create better platforms when they understand email behaviors, whether providing designs for present user preferences or potential functions that will be well received. The study authors said, "Understanding how these patterns shape [email](#) use is necessary for designing the next generation of interaction tools that will improve the efficiency of communication and coordination in social groups."

Study findings: Users replied faster to emails received during weekdays and working hours; replies tended to be shorter later in the day and on

weekends. Younger users generally sent faster, shorter replies. Older users generally replied to a smaller fraction of incoming emails, but their reply time and length were not impacted by overload as much as younger users. Men sent slightly faster and shorter replies than did women. Replies sent from mobile devices were faster and shorter than from desktops. Emails without attachments typically got faster replies. Turning to synchronization of replying behavior within a thread, they found that [users](#) tended to become more similar, both in reply time and length, until the middle of a thread. After that, their behavior became less similar.

A preprint of this study, titled "Evolution of Conversations in the Age of Email Overload" by Farshad Kooti, Luca Maria Aiello, Mihajlo Grbovic, Kristina Lerman, and Amin Mantrach, is on *arXiv*.

More information: Evolution of Conversations in the Age of Email Overload, arXiv:1504.00704 [cs.SI] arxiv.org/abs/1504.00704

Abstract

Email is a ubiquitous communications tool in the workplace and plays an important role in social interactions. Previous studies of email were largely based on surveys and limited to relatively small populations of email users within organizations. In this paper, we report results of a large-scale study of more than 2 million users exchanging 16 billion emails over several months. We quantitatively characterize the replying behavior in conversations within pairs of users. In particular, we study the time it takes the user to reply to a received message and the length of the reply sent. We consider a variety of factors that affect the reply time and length, such as the stage of the conversation, user demographics, and use of portable devices. In addition, we study how increasing load affects emailing behavior. We find that as users receive more email messages in a day, they reply to a smaller fraction of them, using shorter replies. However, their responsiveness remains intact, and they may even reply

to emails faster. Finally, we predict the time to reply, length of reply, and whether the reply ends a conversation. We demonstrate considerable improvement over the baseline in all three prediction tasks, showing the significant role that the factors that we uncover play, in determining replying behavior. We rank these factors based on their predictive power. Our findings have important implications for understanding human behavior and designing better email management applications for tasks like ranking unread emails.

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