

# To Email or Not to Email: The Impact of Media and Task on Psychophysiological Responses and Messages

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Lean asynchronous media such as email have long been considered poor for tasks that involve communicating emotion (Kruger et al. 2005), yet research examining emotion during actual technology usage is limited. We draw upon Neuro-IS methodologies (Dimoka et al. forthcoming) to examine how the use of two different asynchronous communication media—email and voicemail—lead to different emotional responses and different message positivity and negativity when used to perform different tasks.

Individuals use a variety of lean media to conduct business and personal—even romantic—communication (Johnson et al. 2008). Research has suggested that emotional messages received through lean media may be subtly distorted (Byron 2008) and that people prefer leaner media when communicating negative news (Sussman and Sproull 1999), yet we do not understand how the use of different media affects the emotion of the sender while composing messages.

We chose to examine two very dissimilar types of tasks—romantic and utilitarian—to investigate the influence of media on emotional arousal, emotional valence, message positivity, and message negativity in contexts where lean media may or may not be well suited. Understanding the interaction of task and technology has been an important theoretical issue for several years and is crucial to explaining communication outcomes such as these (Goodhue and Thompson 1995; Dennis, et al. 2001).

We used a lab experiment with 72 participants to investigate the influence of media and task on both the psychophysiological responses of the sender (using facial electromyography (corrugator) and skin conductance) and the positivity and negativity of the resulting messages (using content analysis). Subjects composed both utilitarian and romantic email and voicemail messages so that we could understand what senders feel and what they say when using the different media.

Our results show that the use of different media had an important influence on the physiological response of the sender and the content of the message composed. When participants sent email messages, they experienced more negative physiological responses (corrugator) than when they sent voicemail messages (see Table 1). They also experienced more arousing physiological responses (skin conductance) when sending email messages than when sending voicemail messages. Task differences led to differences in the content of messages; romantic tasks led to messages that were both more positive and more

negative than utilitarian tasks. There was an interaction between media and task such that the use of email led to more positive messages than voicemail for romantic tasks and less positive for utilitarian tasks.

Email has long been considered a lean medium, yet our results show that its use triggered stronger, more negative, physiological responses than voicemail and led to more emotional romantic message content. More research is needed on the emotions triggered by different media, especially that using Neuro-IS methods.

| <b>Table 1. Results</b>      |                  |                  |                  |
|------------------------------|------------------|------------------|------------------|
|                              | Media            | Task             | Media x Task     |
|                              | F (p-value)      | F (p-value)      | F (p-value)      |
| <b>Corrugator</b>            | 3.992 (0.05*)    | 0.158 (0.693)    | 0.512 (0.477)    |
| <b>Skin Conductance</b>      | 40.438 (<.001**) | 0.005 (0.946)    | 2.647 (0.109)    |
| <b>Positivity of Message</b> | 9.566 (0.003**)  | 18.301 (<.001**) | 91.671 (<.001**) |
| <b>Negativity of Message</b> | 0.05 (0.824)     | 16.593 (<.001**) | 0.042 (0.838)    |

\* p < 0.05; \*\* p < 0.01

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