資　　料

Analysis of Anger in Mobile Phone Email Communications in Japan

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Abstract

This paper focuses on anger experienced when using mobile phone email. By better understanding the causes of anger among email users, it is hoped that strategies can be developed to avoid such emotional responses. For this research, a three-phase project was conducted. The initial study investigated the causes of the occurrence of anger in email communication by mobile phone. Subsequently, two follow-up studies were conducted in order to better understand the causes revealed in the initial study. One finding of this project was that late responses to mobile phone emails cause anger significantly faster than tardy replies to computer emails. In addition, the results of this project indicate that subjects experienced more sadness and anger and less joy when they read emails written using short sentences in comparison to emails containing emoticons, which suggests that short sentences have a strong influence on emotions in textual communications.

Introduction

Electronic communications are taking up a greater percentage of our daily communication regime, both for personal and professional communications, and email is the most used online tool (Madden 2003). While there are many advantages to these new communication options, there are also reports of negative incidences related to electronic communications in Japan. One extreme incident involved the death of a sixth grader, stabbed with a cutter knife by a classmate which caused a big sensation not only in schools, but also within society. The cause of this sad incident was some disagreement between the victim and her assailant in an Internet discussion space which spilled over into a physical assault. While attacks of this magnitude are thankfully

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rare, violence rising out of electronic communications is not uncommon according to previous research on emotion in online communications (Kato & Akahori 2006, Kato, Kato & Akahori 2007, Kato, Kato, & Scott 2007). This is attributable, in part, to the fact that text-based, electronic communications lack the range of nonverbal information which are an important part of face-to-face communications (Kiesler, Zubrow, Moses & Geller 1985). However, as research into mediated electronic communications developed, mediated-communications have come to be characterized as an emotional media similar to conventional communication (Walther 1992). According to Walther (1992), users of computer-mediated communications (CMC) can achieve similar personal communication as those in face to face communication. Moreover, CMC has sufficient capability to promote exchange of social and affective information, including attractive details like status, affiliation, likes and dislikes, etc. (Walther 1992). Some examples of information exchange methods mentioned are the deliberate delaying of message transmission (Walther & Tidwell 1995; Hesse, Werner & Altman 1988), and use of nonverbal information, such as a pictorial symbols and an emoticons (Reid 1995, Thompsen & Foulger 1996).

The study described in this paper focuses on a particular aspect of electronic communications: The use of cellular telephone email by Japanese young people. While American young people tend to use their computers to send electronic messages, their Japanese counterparts use cellular telephones almost universally and a great deal of this use is to send email (Ito 2003). This study considers the emotion of anger in electronic communications and was conducted in three phases: The goal of the initial study was to identify the causes of anger in email. Two follow-up studies then investigated the causes identified in the first study in greater detail. It is hoped that by analyzing anger in electronic communications, we may be able to make suggestions for ways to avoid emotional trouble in these communication environments.

Initial Study: Causes of Anger

Three aspects of anger rising out of mobile phone messages were examined: Anger experienced when receiving emails, sending email that caused someone to become angry, and suggestions to avoid their partners feeling angry with their email messages.

This first study was conducted in April, 2005. The subjects were 48 students who were studying information media in a department of education in a Japanese women's college. Seven subjects were sophomores, 33 juniors, and eight were seniors. In addition, all subjects answered that they had mobile phones and had experienced using email on their mobile phones.

Data were obtained by using a question which consisted of three items which were answered in two ways: "Yes-No" and a free response section for more detailed explanations. The questionnaire was distributed and completed within 20 minutes. The items included were:

1. Have you ever felt angry when you reading a mobile phone email message? What was the cause of your anger?
2. Have you ever caused someone to become angry with an email message you have sent? What was the cause of their anger?
3. In the exchange of email by mobile phone, do you do anything to avoid offending your partner? What do you do?

Results

The results on the Yes-No items are shown in Figure 1. Far more people claim to have experienced anger by receiving an email message than causing anger by sending a message. This result, in part, supports the importance of examining the emotion of anger as an easy trigger of emotional troubles in email. This gap also begs the question of whether the participants caused less anger than they experienced, or if senders are left unaware of the emotions their messages cause. A final important point is that nearly all participants are actively doing something to avoid causing anger through their email messages.
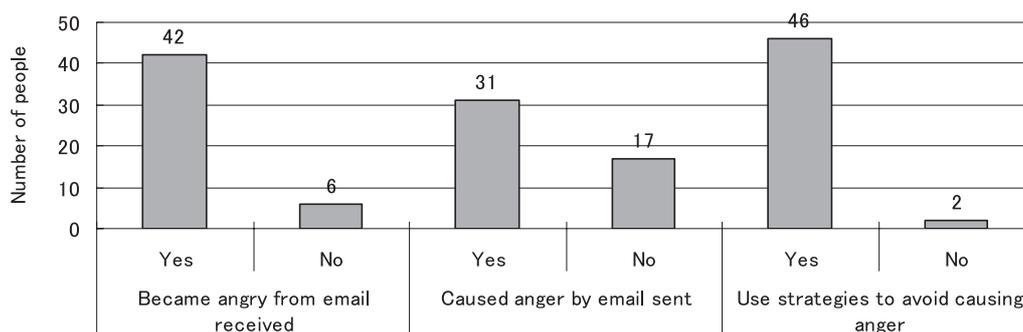

Figure 1: Anger caused by receiving and sending email, and strategies to avoid it

The results from the free responses were classified into several categories and subcategories by the authors. Categories and examples of responses are shown in Table 1. Additionally, the result of the classification for every question is shown in Figures 2, 3, and 4.

Table 1: The categories and typical examples of free description responses

| Experiences	Categories	Typical examples
Became anger from email received / caused anger by email sent	Short sentences	When email sentences were written short.
	Didn't use emoticons or graphical symbols	When email contents did not contain any emoticons or pictorial symbols
	Late reply	When the reply of email was late.
	Unexpected answer	When the content of the reply email was changed into another subject.
	Multiple use of pictorial symbols	When emails contained too many pictorial symbols
	Wording	When a partner wrote in a severe way.
	Late night reply	When emails were sent when the partner was already asleep
	Mistaken address	When emails were mistakenly sent to another person
Things I do to avoid offending the receiver	Used emoticons & graphical symbols	I use emoticons and pictorial symbols.
	Polite wording	I try to use honorific expressions in the email sentences.
	Long email sentences	I write long email sentences.
	Prompt reply	I try to reply promptly
	Greetings	I try to include greetings in the email sentences.
	Revising and improving the content before sending	I certainly reread the email content before sending it
	Write brief contents	I write brief email contents
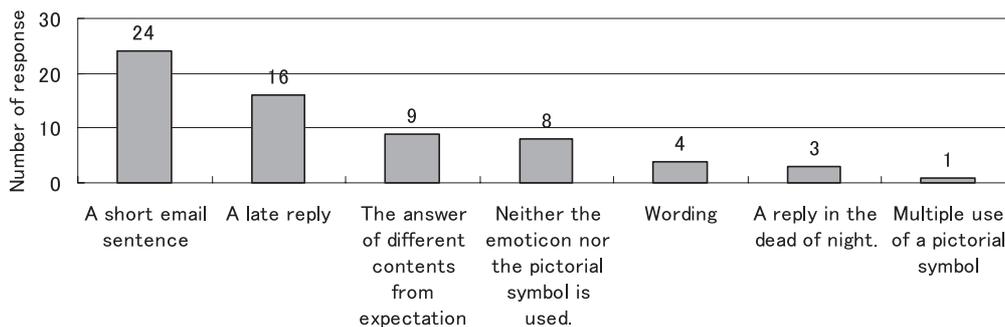
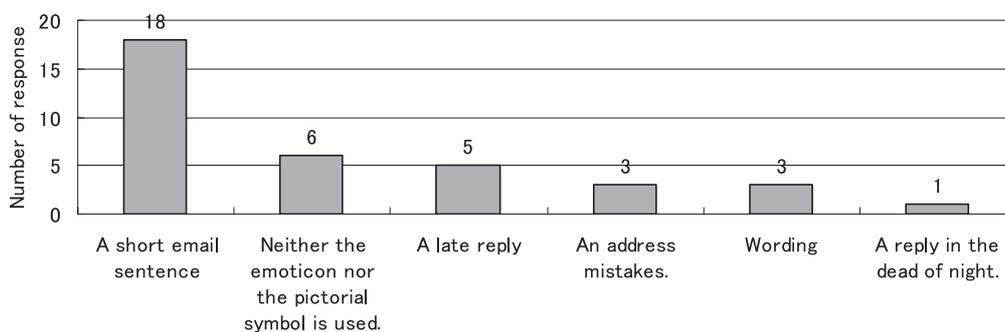Figure 2: The causes of anger when receiving email message

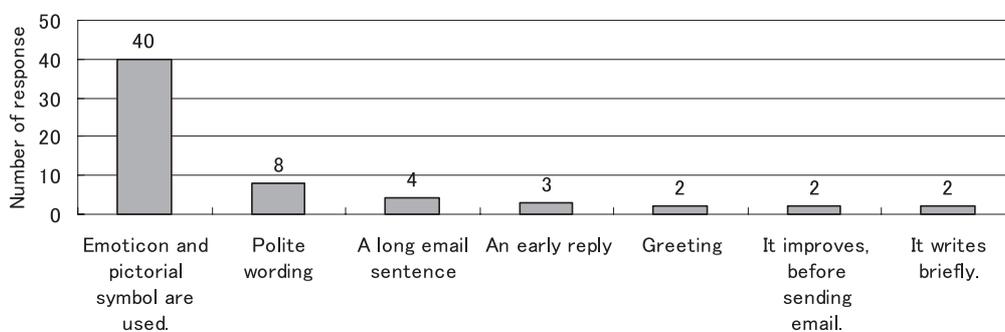Figure 3: The perceived causes of anger in email sent to someone else

Figure 4: Things participants do to avoid causing anger with their email messages

The overwhelming response to the third question was that most participants include emoticons to avoid causing anger. This strategy is tested in the second follow-up study.

From these results, many subjects replied "short email sentences," "late reply," and "not using emoticons and pictorial symbols" as three of the main causes of anger in mobile phone email messages. With regards to the emotion of anger, although the above factors were not mentioned, they are in agreement with findings from previous research (Walther & Tidwell 1995, Hesse, Werner & Altman 1988, Thompsen & Foulger 1996) which pointed out how the factors play an emotional role. The following studies examined these causes in greater detail.

Follow-up study 1

In follow-up study 1, the focus of the investigation was on the response "late reply" which was one of the causes of anger found in the initial study. In order to investigate the relationship between the reply time in email communication by mobile phone and anger, research was conducted comparing mobile phone email with that of PC. Subjects were asked to determine based on their past experiences if they would feel anger when their partners were late to reply their emails on either mobile phone or PC.

This research was conducted in April, 2005. The subjects were 44 students who were studying information media in a department of education in a Japanese women's college. All participants had experience using mobile phone and computer email. Data were collecting using a questionnaire. The following scenario was created for the subjects: "You didn't quite understand the contents of today's lecture. You asked a friend about it by sending her a mobile phone email message at noon. However, your friend took a long time to send you a reply. How much time would have to pass before you would become angry with your friend's late response?" The subjects were then asked to mark a time line when they felt anger over the matter. The same scenario was also used for emails using PC and a similar question was asked. The questionnaire used is shown in Figure 5.

| 1:00 p.m. | 3:00 p.m. | 11:00 p.m. | 1:00 a.m. | 3:00 a.m. |

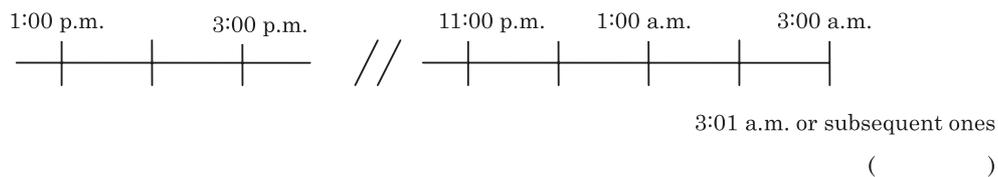3:01 a.m. or subsequent ones

(   )

Figure 5: Questionnaire used in phase 2

This research studies the feeling of anger evoked by the time delay between sending and receiving of emails through mobile phone and PC. A t-test was then conducted on the responses gathered from the subjects' questionnaires and the results are shown in Figure 6. The results showed that mobile phone email produced the anger in a significantly shorter amount of time compared to PC mail ($t(43) = 4.08$, $p < 0.01$). That is, a subject would become angry if the reply to their email sent at noon had not been received by that evening. On the other hand, with emails sent from PC, a subject would not become angry until the next morning.
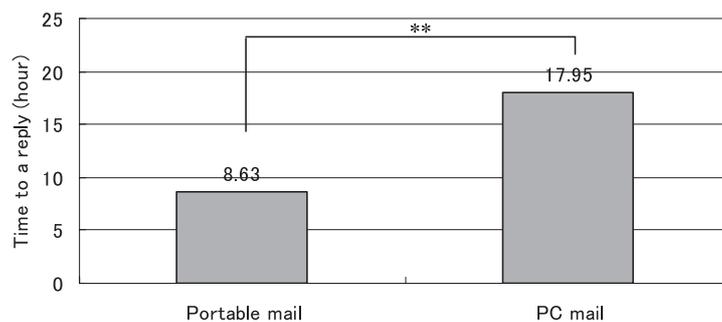
Figure 6: Comparison of the delay in mobile phone and personal computer email responses and the onset of anger (t-test, ** $p < 0.01$)

Follow-up Study 2

This research focuses on two of the other top causes of anger revealed in the initial study, namely, "short mail sentences" and "not using emoticons or graphical symbols." In order to investigate the influence these two factors have on evoking anger, emails which contained both factors were shown to the subjects, and the feelings they experienced were studied. In addition to the emotion of anger, this research also considered the influence the factors have over the emotion of joy and sadness. Previous research (Kato, Sugimura & Akahori 2001) showed that basic emotions can be classified into three groups: Hostile emotions, positive emotions, and negative emotions (Izard, Libero, Putnam & Haynes 1993). The emotions of anger, joy, and sadness which this investigation considered correspond to these results.

This research was conducted in May, 2005. Subjects were 41 students who were studying information media in a department of education in a Japanese women's college. All participants had experience using mobile phone and computer email. Data were obtained through a questionnaire. A scenario was presented to the subjects that the following mobile phone email had been sent: "I could not understand some parts in today's lesson on human media. What is good design?" Eight email replies were then shown to the subjects. The responses were designed based on the following features:

       1. Short sentences or long sentences

       2. Understanding or not understanding

       3. With emoticons or without emoticons

Examples are presented in Table 2.

Table 2: Sample email responses to course content inquiry

		Included emoticons	**Not included emoticons**
Short sentences	**Understood**	Yes. I understand.	Yes. I understand ＼(^o^)/
	Didn't understand	I do not understand.	I do not understand (^_^;)
Long sentences	**Understood**	It is a good design. It is easy to use a good design for a person, and it is a design friendly to people.	It is a good design (^o^) It is easy to use a good design for a person, and it is a design friendly to people ＼(^o^)/
	Didn't understand	Well, it was what... I do not understand. A good design? I will ask a teacher shortly.	Well, it was what... (^_^;) I do not understand. A good design? I will ask a teacher shortly. (^o^)

From the replies shown, the subjects were asked to respond using a five-point scale (1 = not at all true and 5 = very true) to three different factors: Anger, joy, and sadness. A repeated ANOVA of 2x2x2 was conducted using three factors "with/without emoticons," "short/long sentences" and "understood/did not understand."

With regards to the factor "understood/did not understand," there was no significant difference among the three kinds of emotions, and no significant interaction seen for all three kinds of emotions. We might conclude that message content did not change the emotions felt by the

readings in this situation.

However, significant differences were shown in each emotion by the factor "with/without emoticons" and "short/long sentences." Significant main effects were seen in the evocation of the emotion of joy with the inclusion of emoticons (F (1, 40) = 53.93, p < 0.01) and short or long sentences (F (1, 40) = 59.83, p < 0.01). However, no significant interaction was seen. Significant main effects were seen in the evocation of the emotion of sadness with the existence of emoticons (F (1, 40) = 44.38, p < 0.01) and short or long sentences (F (1, 40) = 35.15, p < 0.01). However, no significant interaction was seen. Significant main effects were seen in the evocation of the emotion of anger with the existence of emoticons (F (1, 40) = 35.44, p < 0.01) and short or long sentences (F (1, 40) = 33.32, p < 0.01). Furthermore, significant interaction (F (1, 40) = 8.63, p < 0.01) was seen for both. Figures 7, 8, and 9 show the relationship between the factors "using emoticons" and "short or long sentences" in graphs about the emotions of "joy," "sadness," and anger.

Compared to emails written in long sentences, when email consisting of short sentences was received, the subject answered that the feeling of joy was lower and sadness was higher. When emoticons were included in the message, the subjects answered that they felt more joy than sadness. In general, the emoticons used in the mobile phone email written in short sentences, subjects felt sadness and anger more and there was a tendency to stop joy more. This suggested that short email sentences have a greater influence on emotions experienced.
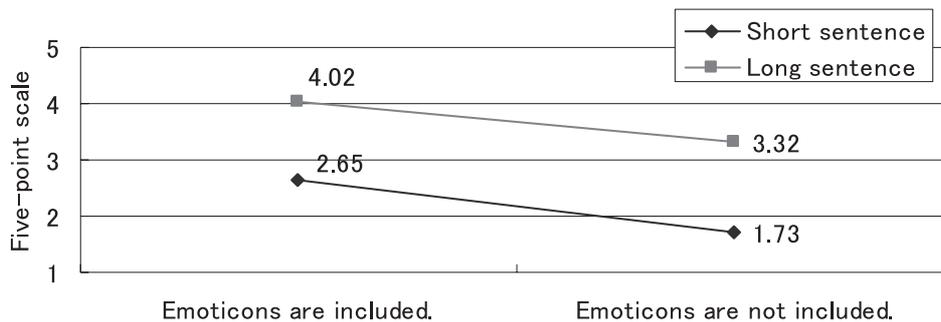

Figure 7: Comparison of evocation of the emotion of joy with short/long sentences and emoticons included/not included
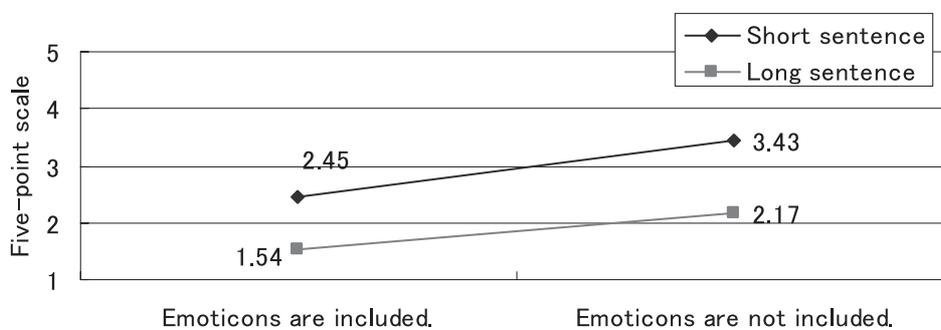

Figure 8: Comparison of evocation of the emotion of sadness with short/long sentences and emoticons included/not included
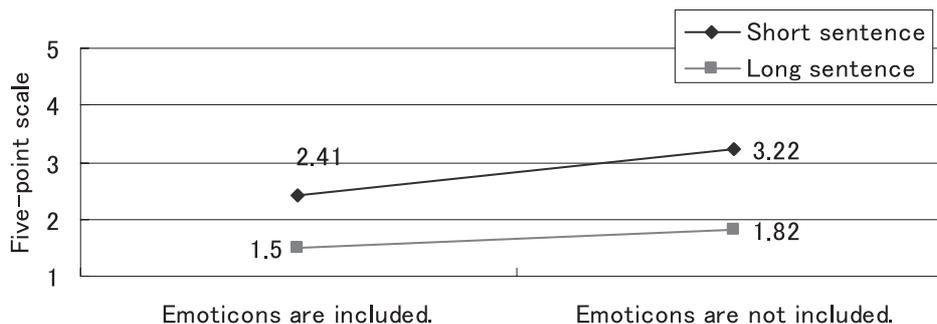
Figure 9: Comparison of evocation of the emotion of anger with short/long sentences and emoticons included/not included

Discussion & Conclusion

This study included three parts which examined the emotion of anger in mobile phone email. In the initial study, the experience of anger felt when using mobile phone email was investigated. The results suggested that "short email sentences," "not using emoticons or graphical symbols," and "late replies" are among the most common possible triggers of anger in mobile phone email communication. Based on these results, two follow-up studies were conducted to better understand these emotional triggers.

The first follow-up study was conducted to investigate the relationship between the time delay of sending and receiving email replies and the occurrence of anger. This investigation compared mobile phone email with computer email. The results showed that in the case of mobile phone emails, the emotion of anger is produced in significantly shorter time in comparison to when PC mail is used. We believe this results is because email on the PC is not easily accessible everywhere. The mobile phone, however, is a portable device, and is accessible almost anywhere. In addition, when a subject receives an email in her mobile phone, she is instantly alerted of the matter. For this reason, it is thought that the user expects that mobile phone email has more synchronicity of an exchange than an email with a PC, and consequently, a more prompt reply is required.

The second follow-up study then investigated how not using the emoticons and writing in short sentences influence or bring about the occurrence of anger in email communication by mobile phone. Email contents designed based on these two factors were shown to subjects and the emotions produced was investigated. In addition to the emotion of anger, this investigation also considered the influence they have on the emotions of joy and sadness. The results showed that when contents were written in short sentences, the emotion of joy was produced less while sadness was produced more in comparison to when contents were written in long sentences. Moreover, when there were emoticons, the subjects answered that the emotion of joy was produced more and sadness less in comparison to when no emoticons were used. In general, more than in the existence of emoticons, in the mobile phone email written in the short sentences, subjects felt sadness and anger more and there was a tendency for less joy. This suggests that short email sentences have a greater influence on emotions experienced.

One of the goals of this line of research is to identify ways to prevent emotional troubles in email communication through mobile phone. By its nature, cellular phone email has higher

mobility in comparison to other forms of CMC. Therefore, the emotion of anger felt in situations (for instance, when a reply is late) may be greater because of the expectations one has regarding mobile phone email. Mobile phone users assume their communication partners have a mobile phone with them and can therefore receive and respond to messages quicker than with PC-based CMC. While there is still some delay, users seem to expect greater synchronicity, closer to that found in face-to-face and voice communications. When a reply is not received as expected, the user may feel greater frustration and may produce the emotion of anger.

Mobile phone email is an exchange of text-based messages. Therefore, the transfer of emotion can be difficult to achieve (Kato & Akahori 2005). This is one point where mobile phone email communication differs from other conventional synchronized media of communication. Therefore, the ability to evoke emotions despite its text-based characteristic is an important aspect of investigation.

Finally, we would like to touch upon the research limitations and future work. In the research conducted in this study, all subjects were students from a women's college in Japan. A natural next step is expand this research to include male subjects. In addition, we hope to expand this work to include subjects from various age groups and cultural backgrounds.

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携帯メールを用いたコミュニケーションにおける怒りに関する分析

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抄　録

　本稿は、携帯電話のメール機能 (以下、携帯メール) を使用する際の怒り感情に焦点を当てた。怒りの原因を理解することで、メールコミュニケーションでの感情的なトラブルなどを防ぐための方略への応用が期待できる。本研究は3フェーズで行った。最初に、予備調査として、携帯メールを使ったコミュニケーションにおける怒りの喚起の原因について調べた。その後、予備調査の結果を踏まえて、2つの研究を行った。主な結果を以下に述べる。携帯メールに対する返信は、PCベースのメールに対する返信に比べてより早い返信を望み、怒りを生じるまでの時間が有意に短いことがわかった。また、短文で書かれたメール受信して読むことは、より悲しみや怒りを感じ、より喜びを感じることを減少させた。したがって、短文は、文字ベースのコミュニケーションにおける感情に強い影響を与えることを示唆した。

キーワード：携帯メール, 怒り, 顔文字, 短文, 感情的なトラブル