Exploring Emotional Strategies in Mobile Phone Email Communication: Analysis on the Impact of Social Presence

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Abstract: As a first step to barrier emotional troubles in educational computer-mediated communication such as e-learning using mobile devices or "m-learning", emotional strategies used in mobile phone email in response to four kinds of emotion evocation situation (joy, sadness, anger, and guilt) are explored. In this study, the emotional strategies in different social presence situations which the participants communicate to four kinds of partner on different socio-psychological distance (close friend, not close friend, close teacher, and not close teacher) are compared. From the results, one unified emotional strategy which the participants asked for sympathy to the partner was seen in situations concerning emotions of joy in all social presence situations. On the other hand, various emotional strategies which the participants intended to control the partners' emotions were seen in other emotion evocation situations depending on the social presence situations.

Keywords: Emotional strategy, Social presence, Mobile phone, Email communication

1. Introduction

1.1 Background

The explosive growth of ICT and the Internet increase the general opportunity for use of Computer-Mediated Communication (commonly referred as CMC). CMC is mainly text-based and includes high visual anonymity. Thus the users communicate freely from their social context such as age, job, or social position (Spears & Lea 1992). These merits were applied for educational context by many researchers. In particular, studies on Computer Supported Collaborative Learning (CSCL) are popular. CSCL is a trial to enhance social interactions between learners and between teachers and learners by using the aforementioned features.

On the other hand, some researchers criticize a negative effect of CMC. Because of the high visual anonymity, the CMC user tends to misconceive the other's emotional state (Kato et al. 2007). In fact, these negative effects have been one of the factors in real-life violence between adolescents (Funk et al. 2004). Relating with these problems, some neuropsychologists indicated influences of prefrontal cortical dysfunctions (Camille et al 2004). The basic activity of this brain region is considered to be orchestration of thoughts and actions in accordance with internal goals. It relates to abilities to suppress urges that could lead to socially unacceptable outcomes (Miller & Cohen 2001). Thus, if this region doesn't work, the user tends to remark without his/her concern for others as if he/she responds to a stimulus (Damasio et al. 1990). It is possible that this causes serious emotional trouble such as the real-life violence. Against this background the importance of having support for learners' emotional aspects in educational CMC was pointed out by some researchers (e.g. O'Regan 2003; Kang et al. 2007).

As further objectives of this study, to barrier mentioned emotional trouble in CMC and to promote safe and effective CMC in educational settings are aimed. This paper focuses on mobile phone email which has quickly become one of the main CMC for adolescents.

1.2 Social Presence

According to aforementioned neuropsychological studies, using media corresponding to a work of a prefrontal cortex is also effective. In a related matter, Gallagher et al. (2002)'s experiment to investigate the neural substrates of mentalizing condition when the subjects were playing a computerized version of the children's game "stone, paper, scissors" provides interesting suggestions. The anterior paracingulated cortex, one of a prefrontal cortical region, was activated only when the subjects believed that they were playing against the experimenter (no activation when they believed that they were playing against the computer). Thus, in CMC, the user's perception that he/she communicate to a "person" may be important factor to barrier the emotional troubles. Social presence, the degree to which a person feel socially and emotionally connected (Richardson & Swan 2001), is a much related concept of this perception.

Short et al. (1976) defined the social presence as the "degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships…" (p.65). That is to say, the degree to which a person is perceived as a "real person" in the mediated communication (Gunawardena 1995, p.151). Richardson and Swan (2001) expressed this concept as a term "socio-psychological distance". For factors to enhance social presence, Gunawardena (1995) mentioned the degree of "intimacy" and "immediacy" of the social interaction. On the other hand, some researchers indicated the effects of social context to the social presence (e.g. Rutter 1987; Rafaeli 1990).

Against the background of progress in e-learning, the impact of social presence for educational uses of CMC was suggested by many researchers (Richardson & Swan 2001). Gunawardena & Zittle (1997) proved that social presence was a strong predictor of satisfaction in CMC settings. Garrison & Anderson (2003) suggested that social presence was an essential element for enhancing meaningful social interactions in educational CMC.

1.3 Emotional Strategy

As a theoretical background to barrier the aforementioned troubles, the pilot study (Kato et al. 2008) used the Emotional Intelligence (also known as Emotional Intelligence Quotient or EQ) model which defined by Salovey and Mayer (1990) as "the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions." The Emotional Intelligence model mainly focuses on an individual's emotional side, and represents the ability to validly reason with emotions and to use emotions to enhance thought. Kato, Kato, Scott, and Sato (2008) applied this model to the communication process, and proposed an emotional strategy concept. They perceived the emotional strategy as "what kind of emotions does a participant experience for an emotion evocation situation in communication, and as the result, what kind of emotions the participant convey to their partner, and what kind of emotions does the participant anticipate the partner will experience." In this pilot study on mobile phone email communication, one emotional strategy was seen in situations concerning emotions of joy, while two or more emotional strategies were seen in the situations related to sadness or anger. In a related matter, Kato, Kato, and Akahori (2007)'s study on the emotions in communications on an email indicated that the CMC users' judgments of others' emotional states were significant accurate when the others write messages in positive emotions.

1.4 Purpose of This Study

In this paper, to expand the pilot study of Kato, Kato, Scott, and Sato (2008), impacts of social presence to the emotional strategies are considered. This study also focuses on the emotional strategies in communication of mobile phone emails. To find out emotional strategies in different social presence situations is aimed.

Two concepts which influence the social presence are picked up. One is the intimacy. For the partner of the communication, two situations (close person and not close person) are set corresponding to degree of intimacy. Other is the social context. For the partner of the

communication, two situations (friend and teacher) are set. That is four situations are set as the socio-psychological distance between the participants and the partners: close friend, not close friend, close teacher, and not close teacher.

An experiment was conducted in which four emotions (joy, sadness, anger, and guilt) were presented in scenarios. Mobile phone email communication was set up to examine emotional strategies employed by participants. Specifically, the relationships among (1) the emotions which participants produced, (2) the emotions which the participants want to convey to their partners and (3) the emotions which the subjects expect the partners to produce, were considered in the emotional strategies. This is an important first step to find ways to better understand and ultimately help prevent emotional trouble when using popular textual communication modes. As the partners of the communication, four kinds of social presence situations described above were set up. The emotional strategies in each social presence situation were explored and later compared.

2. Method

2.1 Subject

91 university students (56 men, 35 women, an average of 19.3 years old, and ranges of 18 to 27 years old) who were studying ICT participated in the experiment. As a result of asking a subject about the frequency in use of a usual mobile phone email, 89 subjects (97.8%) responded that they were using it for every day or a week several times.

2.2 Emotion Measured in the Experiment

Although there are many kinds of emotions, they can be classified into some basic emotions. For example, according to Ekman (1992), there are six kinds of basic emotions: Joy, sadness, anger, surprise, fear, and dislike. In this study, joy, sadness, and anger were selected from the basic emotions identified by Ekman (1992). These three emotions correspond to a positive, a negative, and a hostile emotion, respectively. In the pilot studies (Kato et al. 2007), research had been facilitated by this classification scheme so it was applied in this study as well. In addition the emotion of guilt was also added in this study. Guilt is an emotion closely connected with apologetic acts. Thus it would lead to avoidance of emotional troubles.

2.3 Situation Set Up in the Experiment

Mobile phone email messages intended to evoke four kinds of emotion were sent to participants. Examples of the messages are described in Table 1. Underlined texts were changed according to the partner's situation of social presence ("close friend", "not close friend", "close teacher", and "not close teacher").

2.4 Questionnaire

In this experiment, the following three kinds of the subjects' emotional aspects were asked by the questionnaire.

- Degree of emotions subjects experienced when a mobile phone email is received (hereafter called their "emotional state")
- Degree of emotions subjects want to convey to the recipient of a cell phone email they send (hereafter called the "intended emotion")
- Degree of emotions which the subjects expect the recipient to experience when they read the subject's email (hereafter called the "expected emotion")

Each questionnaire used a five-point scale (1: disagree strongly - 5: agree strongly) about the emotional aspects described in the above table. For example, the item concerning the emotion of joy in the close friend situation of each questionnaire is the following: "You produced the

emotion of *joy* by a mobile phone email from your close friend" for the emotional state, "You want to convey the emotion of *joy* to your close friend with an email response" for the intended emotion, and "You expect a close friend to produce the emotion of *joy* with reply mail" for the expected emotion.

Table 1: Situations Presented to the Subjects

Joy	You studied hard for a test. A close friend of yours went to see the test results and in order to let you know the results as soon as possible, they sent you a cell phone email saying you had passed!
Sadness	A close friend of yours went to see the test results and in order to let you know the results as soon as possible, they sent you a cell phone email saying you had failed because you forgot to write your name on the exam.
Anger	A close friend of yours sent you an urgent cell phone email saying they forgot to tell you the test time had changed and you missed the exam.
Guilt	You missed a class and you made an appointment to meet with a close friend of yours to get the class notes. You received an urgent email from your friend saying that they waited at the appointed time and place for you, but you never showed up.

2.5 Procedure

First, the questionnaire about three kinds of emotional aspects examined in this experiment was explained to the subjects. Next, sixteen situations (four kinds of the emotion in each four kinds of the social presence situation) were presented and the questionnaire about three kinds of emotion sides in each situation was asked. Although the questionnaire was presented in order of the emotional states, intended emotions, and expected emotions, the experimenter asked the subjects to actually write the email responses in each situation between the emotional states and intended emotions. This is because acquisition of the data of more realistic intended emotions or expected emotions is expectable by actually writing reply mail. In addition, instruction and the questionnaire of four kinds of situations were distributed in paper, and did not specify in particular about an order of the reply. Moreover, the time from the start of this experiment to an end was about 1 hour and 30 minutes.

2.6 Analysis

To find out the main emotional strategies of each situation, Two-Step cluster analysis was conducted. Statistical software SPSS 14.0 was used for this analysis. Twelve variables of subjects' rated scores for each four kinds of the emotion (joy, sadness, anger, and guilt) in each three aspects (emotional states, intended emotions, and expected emotions) were used.

3. Result

3.1 In the Case of Close Friend

As results of the cluster analysis of data in the close friend situations, Table 2 shows found clusters, number of subjects categorized each cluster, and the average scores of subjects' ratings for each emotion.

In the joy situation, one cluster was shown and 90 subjects (99%) were categorized into this. Subjects in this cluster tended to convey high joy to the partner comparable as the emotion experienced by the subjects, and also expect the partner to produce joy.

In the sadness situation, two clusters were shown. 31 subjects (34%) categorized into first cluster and they tended to convey high sadness to the partner comparable as the emotion experienced by the subjects, and also expect the partner to produce sadness. On the other hand, 60 subjects (66%) categorized into second cluster and they tended to suppress sadness produced in them, and expect the partner to reduce sadness.

In the anger situation, two clusters were shown. 43 subjects (47%) categorized into first cluster and they tended to convey sadness to the partner comparable as the emotion experienced

by the subjects, but expect the partner to reduce sadness and guilt compared with second cluster. 46 subjects (51%) categorized into this and they tended to convey sadness and anger to the partner comparable as the higher sadness and anger experienced by the subjects than the subjects in the first cluster, and expect the partner to produce sadness and high guilt.

In the guilt situation, two clusters were shown. 78 subjects (86%) categorized into first cluster and they tended to convey high guilt to the partner comparable as the emotion experienced by the subjects, and expect the partner to reduce anger. Fewer 11 subjects (12%) categorized into second cluster and they tended to also high guilt and, in addition, sadness to the partner comparable as the sadness and guilt experienced by subjects, and expect the partner to reduce anger in the same manner as the first cluster.

3.2 In the Case of Not Close Friend

As results of the cluster analysis of data in the not close friend situations, Table 3 shows found clusters, number of subjects categorized each cluster, and the average scores of subjects' ratings for each emotion.

In the joy situation, one cluster was shown and 84 subjects (92%) were categorized into this. The strategy is in the same manner as a case of close friend situation. However number of subjects who were categorized the cluster was less and the scores for joy were rated lower compared with the close friend situation.

In the sadness situation, two clusters were shown. 28 subjects (31%) categorized into first cluster and they tended to convey sadness to the partner comparable as the emotion experienced by the subjects, but expect the partner to reduce sadness. On the other hand, 60 subjects (66%) categorized into second cluster and they tended to suppress sadness produced in them, and expect the partner to reduce a comparable emotion.

In the anger situation, one cluster was shown and 83 subjects (91%) categorized into this. Subjects in this cluster tended to convey anger to the partner comparable as sadness and anger experienced by the subjects, and expect the partner to produce guilt.

In the guilt situation, one cluster was shown and 85 subjects (93%) categorized into this. The strategy is in the same manner as a case of the first cluster in the close friend situation.

3.3 In the Case of Close Teacher

As results of the cluster analysis of data in the close teacher situations, Table 4 shows found

Table 2: Clusters and Scores for Each Emotion in Close Friend Situation

Situation	Cluster	N	Emotional state				Intended emotion				Expected emotion			
			Joy	Sad	Anger	Guilt	Joy	Sad	Anger	Guilt	Joy	Sad	Anger	Guilt
Joy	1	90	**4.84**	1.13	1.11	1.18	**4.72**	1.08	1.03	1.13	**4.44**	1.04	1.00	1.13
Sadness	1	31	1.35	**4.71**	2.87	2.90	1.19	**4.42**	2.55	2.77	1.29	**3.55**	2.00	1.84
	2	60	1.73	**3.68**	1.13	1.47	1.53	**3.07**	1.07	1.42	1.78	2.42	1.03	1.10
Anger	1	43	1.37	**3.72**	3.09	1.56	1.37	**3.21**	2.67	1.81	1.42	2.81	2.19	2.30
	2	46	1.00	**4.11**	**4.41**	1.07	1.00	**3.89**	**3.98**	1.09	1.00	**3.22**	1.11	**4.61**
Guilt	1	78	1.00	2.40	1.08	**4.71**	1.01	2.65	1.10	**4.54**	1.28	1.88	1.38	1.53
	2	11	2.00	**3.55**	2.82	**4.82**	1.64	**3.82**	2.36	**4.36**	2.73	2.09	1.73	2.27

* A **bold number** shows the high-rated score more than 3, and an underlined number shows the low-rated score compared with other clusters or other cases in different social presence situations.

Table 3: Clusters and Scores for Each Emotion in Not Close Friend Situation

Situation	Cluster	N	Emotional state				Intended emotion				Expected emotion			
			Joy	Sad	Anger	Guilt	Joy	Sad	Anger	Guilt	Joy	Sad	Anger	Guilt
Joy	1	84	**4.14**	1.14	1.15	1.29	**3.88**	1.11	1.07	1.24	**3.43**	1.04	1.04	1.13
Sadness	1	28	2.07	**3.50**	2.71	2.00	2.36	**3.82**	2.32	2.18	2.14	2.82	1.96	1.89
	2	60	1.17	**3.63**	1.53	1.80	1.20	2.42	1.05	1.25	1.18	1.78	1.00	1.07
Anger	1	83	1.07	**3.23**	**4.00**	1.37	1.02	2.86	**3.41**	1.48	1.05	2.59	1.66	**3.51**
Guilt	1	85	1.06	2.28	1.26	**4.47**	1.08	2.64	1.06	**4.42**	1.33	1.84	1.41	1.53

clusters, number of subjects categorized each cluster, and the average scores of subjects' ratings for each emotion.

In the joy situation, one cluster was shown and 85 subjects (93%) were categorized into this. The strategy is in the same manner as a case of close and not close friend situations. Number of subjects who were categorized the cluster was almost same as the case of not close friend situation, while the scores for joy emotion were rated high in the same manner as the close friend situation.

In the sadness situation, two clusters were shown. 19 subjects (21%) categorized into first cluster and they tended to convey joy with low sadness to the partner comparable as high joy and low sadness experienced by the subjects, and expect the partner to produce joy and also low sadness. On the other hand, 72 subjects (79%) categorized into second cluster and this is the same strategy as the first cluster in not close friend situations. However number of subjects who were categorized the cluster was more than in that case.

In the anger situation, two clusters were shown. 31 subjects (34%) categorized into first cluster and 59 subjects (65%) categorized into second one. These strategies are almost same as the cases of the close friend situation.

In the guilt situation, one cluster was shown and 87 subjects (96%) categorized into this. The strategy is in the same manner as a case of the first cluster in the close friend situation and the not close friend situation.

3.4 In the Case of Not Close Teacher

As results of the cluster analysis of data in the not close teacher situations, Table 5 shows found clusters, number of subjects categorized each cluster, and the average scores of subjects' ratings for each emotion.

In the joy situation, one cluster was shown and 85 subjects (93%) were categorized into this. The strategy is in the same manner as cases of other social presence situations. The scores for joy were similar with the not close friend situation.

In the sadness situation, two clusters were shown. 75 subjects (82%) categorized into first cluster and this is the same strategy as the first cluster in the not close friend situation and the second cluster in the close teacher situation. Number of subjects who were categorized the cluster was more than in the case of the not close friend situation, same as the close teacher situation. Fewer 13 subjects (14%) categorized into second cluster and they tended to convey sadness to the partner but comparable as joy and low sadness experienced by the subjects, and expect the partner to reduce sadness. This is similar strategy with the case of the first cluster in the close teacher situation although the scores of the intended emotion were different. Both cases

Table 4: Clusters and Scores of Each Emotion in Close Teacher Situation

Situation	Cluster	N	Emotional state				Intended emotion				Expected emotion			
			Joy	Sad	Anger	Guilt	Joy	Sad	Anger	Guilt	Joy	Sad	Anger	Guilt
Joy	1	85	**4.84**	1.07	1.05	1.21	**4.85**	1.01	1.00	1.15	**4.75**	1.01	1.00	1.02
Sadness	1	19	**4.16**	2.32	1.37	2.53	**3.58**	2.84	1.16	2.47	**3.37**	2.16	1.42	1.74
	2	72	1.60	**4.26**	2.39	2.68	1.36	**3.71**	1.64	2.94	1.56	2.88	1.50	2.15
Anger	1	31	1.45	**3.61**	**3.26**	1.87	1.42	**3.13**	2.81	1.84	1.32	2.87	2.13	2.74
	2	59	1.10	**4.29**	**4.54**	1.42	1.00	**4.19**	**4.41**	1.95	1.02	**3.61**	1.80	**4.81**
Guilt	1	87	1.13	2.74	1.34	**4.62**	1.06	2.89	1.16	**4.79**	1.67	1.91	1.51	1.72

Table 5: Clusters and Scores of Each Emotion in Not Close Teacher Situation

Situation	Cluster	N	Emotional state				Intended emotion				Expected emotion			
			Joy	Sad	Anger	Guilt	Joy	Sad	Anger	Guilt	Joy	Sad	Anger	Guilt
Joy	1	85	**4.16**	1.09	1.07	1.21	**3.99**	1.07	1.04	1.26	**3.81**	1.01	1.01	1.06
Sadness	1	75	1.07	**4.21**	2.63	2.32	1.00	**3.72**	1.84	2.43	1.20	2.53	1.48	1.88
	2	13	**3.62**	2.69	1.62	2.62	2.54	**3.31**	1.69	3.00	2.85	2.46	1.85	1.77
Anger	1	85	1.09	**3.58**	**4.31**	1.31	1.04	**3.38**	**3.87**	1.59	1.05	**3.00**	1.80	**3.76**
Guilt	1	86	1.13	2.37	1.30	**4.31**	1.01	2.66	1.09	**4.29**	1.37	1.86	1.40	1.64

were fewer cases compared with other strategies in the sadness situations.

In the anger situation, one cluster was shown and 85 subjects (93%) categorized into this. Subjects in this cluster tended to convey sadness and anger to the partner comparable as the emotion experienced by the subjects, and expect the partner to produce guilt.

In the guilt situation, one cluster was shown and 86 subjects (95%) categorized into this. The strategy is in the same manner as cases of the first cluster in the close friend situation.

4. Discussion and Conclusion

Explored emotional strategies in each social presence situation were summarized in Table 6. Top tables show the results in the friend situation, and bottom tables show the results in the teacher situation. Left tables show the results in the close situation, and right tables show the results in the not close situation.

Inclusively, two major types of emotional strategies were showed.

One is named as “sympathy”. In this strategy the participant directly would convey evoked emotion to the partner, and expect the partner to produce sympathized emotion corresponding to the conveyed emotion by the participants. Joy-(1), Sadness-(1), and Anger-(1) in Table 6 are included in this type. Typically, for the joy situations, the participants tended to convey joy to the partner comparable as the emotion experienced by the participants, and also expect the partner to produce a comparable emotion. It is the same manner for the sadness situations. Otherwise, for the anger situations, the participants tended to convey anger with/without sadness to the partner comparable as the emotion experienced by the participants, and expect the partner to evoke sadness and/or guilt.

Other type of emotional strategy is named “control”. In this strategy the participant would convey appropriately controlled emotion to the partner, and expect to reduce frustrated emotion of the partner. Sad-(2), Sad-(3), Anger-(2), Guilt-(1), and Guilt-(2) in Table 6 are included in this type. For example, for the anger situation, the participants tended to convey sadness to the partner comparable as sadness with/without anger experienced by the participants, and expect the partner to reduce sadness and guilt.

As the effect of social presence situations to their emotional strategies, for the joy situation, unified emotional strategies of “sympathy” were showed in all situations of social presence. However the scores of the joy in the close situations were higher than in the not close situations. On the other hand, there were two or three strategies in other emotion evocation situations. For the sadness situations, the “sympathy” strategy was shown only in the close friend situation. For the anger situations, this strategy was shown in all social presence situations. But the scores of the sadness and anger in the close situations were higher than in the not close situations. About the “control” strategy, it was shown only in the close situations for the anger situations. For the sadness and guilt situations, it was shown in all situations of social presence, while a few

Table 6: Emotional Strategies Found in the Experiment

Close friend

	No	Cluster	Emotional state	Intended emotion	Expected emotion	Emotinal Strategy
Joy	(1)	1	◎ Joy	◎ Joy	△ Joy	Sympathy (strong)
Sadness	(1)	1	◎ Sad	△ Sad		Sympathy
	(2)	2	○ Sad	○ Sad	▼ Sad	Control
	(3)					
Anger	(1)	2	◎ Sad◎ Anger	◎ Sad◎ Anger	△ Sad△ Guilt	Sympathy (strong)
	(2)	1	○ Sad	○ Sad	▼ Sad▼ Guilt	Control
Guilt	(1)	1	◎ Guilt	◎ Guilt	▼ Anger	Control
	(2)	2	○ Sad◎ Guilt	○ Sad◎ Guilt	▼ Anger	Control (other)

Not close friend

	No	Cluster	Emotional state	Intended emotion	Expected emotion	Emotinal Strategy
Joy	(1)	1	○ Joy	○ Joy	△ Joy	Sympathy
Sadness	(1)					
	(2)	1	○ Sad	○ Sad	▼ Sad	Control
	(3)	2	○ Sad		▼ Sad	Control (other)
Anger	(1)	1	○ Sad◎ Anger	○ Anger	△ Guilt	Sympathy
	(2)					
Guilt	(1)	1	◎ Guilt	◎ Guilt	▼ Anger	Control
	(2)					

Close teacher

	No	Cluster	Emotional state	Intended emotion	Expected emotion	Emotinal Strategy
Joy	(1)	1	◎ Joy	◎ Joy	△ Joy	Sympathy (strong)
Sadness	(1)					
	(2)	2	○ Sad	○ Sad	▼ Sad	Control
	(3)	1	○ Joy	○ Joy	△ Joy▼ Sad	Control (other)
Anger	(1)	2	◎ Sad◎ Anger	◎ Sad◎ Anger	△ Sad△ Guilt	Sympathy (strong)
	(2)	1	○ Sad○ Anger	○ Sad	▼ Sad▼ Guilt	Control
Guilt	(1)	1	◎ Guilt	◎ Guilt	▼ Anger	Control
	(2)					

Not close teacher

	No	Cluster	Emotional state	Intended emotion	Expected emotion	Emotinal Strategy
Joy	(1)	1	○ Joy	○ Joy	△ Joy	Sympathy
Sadness	(1)					
	(2)	1	○ Sad	○ Sad	▼ Sad	Control
	(3)	2	○ Joy	○ Sad	▼ Sad	Control (other)
Anger	(1)	1	○ Sad◎ Anger	○ Sad○ Anger	△ Sad△ Guilt	Sympathy
	(2)					
Guilt	(1)	1	◎ Guilt	◎ Guilt	▼ Anger	Control
	(2)					

* ◎ : very high rating (compared with other situations), ○ : high rating (more than 3), △ : expected to produce, ▼ : expected to reduce

variations of the strategies were found.

As conclusions from mentioned discussion, it suggested that the intimacy promotes the "sympathy" strategies. In addition, the "control" strategies which will be able to barrier emotional troubles would be promoted by the intimacy. The social context such as friend or teacher also affected these strategies.

Finally, the implication of these findings to the educational context seems to be some suggestions to barrier emotional troubles and to promote effective CMC. The "control" strategies would help prevent emotional trouble. The "sympathy" strategies of joy situation would promote comfortable communications. Kang, Kim, and Park (2007) emphasized the importance of these emotional supports in e-learning. In addition enhanced social presence such as intimacy would promote these strategies. Applications for media literacy education would also be expected. However more studies are needed to propose concrete suggestions.

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