

Korean Emoticons: Understanding How Subtle Emotional Differences Are Evoked Online

Chowon Kang
eunice2001@kaist.ac.kr
Department of Industrial Design,
KAIST
Daejeon, Republic of Korea

Jong-ok Hong
rubfrogjo@kaist.ac.kr
Department of Industrial Design,
KAIST
Daejeon, Republic of Korea

Wooje Chang
wooje.chang@kaist.ac.kr
Department of Industrial Design,
KAIST
Daejeon, Republic of Korea

Hyeon-Jeong Suk
color@kaist.ac.kr
Department of Industrial Design,
KAIST
Daejeon, Republic of Korea

Hwajung Hong
hwajung@kaist.ac.kr
Department of Industrial Design,
KAIST
Daejeon, Republic of Korea

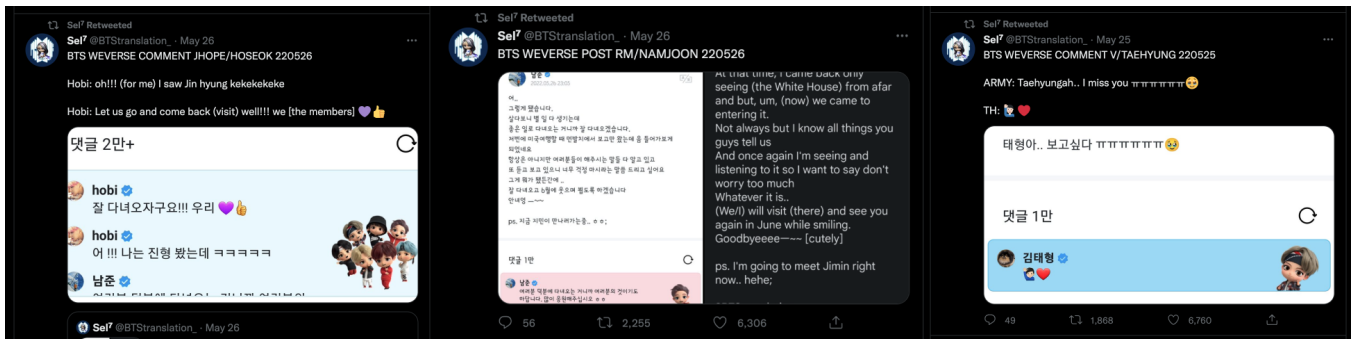


Figure 1: BTS translator twitter accounts have emerged due to the need for accurate translations of Korean emotional expressions

ABSTRACT

Online conversations through text have limitations in expressing emotions that can cause miscommunications across cultures. In this work, we study the Korean emotional expressions in text focusing on how people perceive emotional intentions through the use of emotion-expressing Korean characters. We define them as *Korean emoticons* (‘ㅋ’, ‘ㅎ’, ‘ㅠ’), onomatopoeic characters often used to express emotions for text-based communication. We examine the participants’ understanding and usage of Korean emoticons by conducting an online survey asking to evaluate emotional contents of given sentences and interviews to explain personal experiences. We found that the different numbers of Korean emoticons used evoke different emotions, and that negative emoticons amplify positive emotions in positive contexts and positive emoticons alleviate negative emotions in negative contexts, while emoticons in neutral contexts have varying impacts depending on the context. We further discuss design implications on how text suggestion tools can support users taking emotional intentions into account.

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CCS CONCEPTS

• Human-centered computing → User studies.

KEYWORDS

Korean Emoticons, computer-mediated communication, emotion, emoticon, Korean

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1 INTRODUCTION

As digital communication services are becoming a part of people’s everyday lives, people are adapting their writings to communicate more actively in online settings [21]. With online communication accelerating world globalization [6] (Fig. 1), the failure to capture subtle differences in emotions obstruct effective communication between cultures [18].

One of the main limitations of online text communications is the difficulty of expressing emotions that are essential in order to clearly convey the speaker’s intentions [22]. To make up for this, visual symbols (😊, 🤔, 😭), nonstandard orthography (e.g.,

capitalization as a proxy of shouting, vocal spellings to emulate spoken nonverbal cues)[11, 24], and textual emoticons (e.g., ㅋㅋㅋ in Korean, 哈哈 in Chinese, lol in English, mdr in French, www in Japanese) are frequently used, and are becoming more diversified.

As different cultures with different languages have evolved to find their original emotional expressions online, they are not defined by a set of rules, but rather are verbal trends people develop based on their cultural characteristics, lifestyles, and customs [7]. In the case of South Korea, people commonly use Korean characters within sentences to deliver intricate emotional intentions. The most representative Korean characters are ‘ㅋ’, ‘ㅎ’—onomatopoeic consonants that resemble laughing sounds—and ‘ㅠ’—a vowel that resembles a crying face [4]. These Korean letters are frequently used as people can express their emotions by simply entering a single character multiple times (e.g., ‘ㅋㅋㅋ’, ‘ㅎㅎㅎ’, ‘ㅠㅠㅠ’). In this paper, we refer to these emotion expressing characters as *Korean emoticons*.

While studies using data analysis have uncovered findings on the usage tendency and frequency of Korean emotion letters [4, 20], there are limitations as they are unable to define the subtle difference of emotions when used in different forms and contexts. Our study investigates how the repetition, selection, and the use of context of the Korean emoticons control the delicate changes in and the strengths of emotions to be delivered by examining the following research questions: 1) How does the variance in types and repetitions of Korean emoticons change the meaning of the sentence? 2) How does the Korean emoticons change the emotion to be delivered in different contexts of conversations?

Our study reveals that negative Korean emoticons amplify positive emotions when it is used in positive contexts, while positive Korean emoticons alleviate negative emotions in negative contexts. Also, using the Korean emoticons once, twice, or more evoke subtle changes in the emotional meaning of a sentence. Drawing upon the findings, we discuss design implications and limitations that can aid the design of online communication tools such as translators and chatbots derived from sentimental analysis on online conversations.

2 BACKGROUND AND RELATED WORKS

Our research draws from related works in two main methods of express emotions online: visual representations and symbolic representations.

One of the core functions of emoji—picture characters or pictographs often used in text-based communication [17]—and emoticons—icons evolved to express emotions composed of clusters of typographic symbols [2]—is to deliver visual contents representing emotions in order to reduce ambiguity and clarify one’s emotion of a message [5, 15]. However, emojis and emoticons have a risk of being misinterpreted due to several reasons. In the case of emoji, the understanding and impression of an emoji differ depending on the background and awareness of people [8, 16] or the variation of rendering across platforms [1]. Emoticons, on the other hand, have evolved to express emotions mostly commonly via facial expressions that vary by cultures, which can lead to inaccurate emotion interpretation across different cultures [26].

Our work investigates the Korean emoticons, emotional expressions focused on delivering paralinguistic cues driven by the Korean language and culture through linguistic icons [25] rather than the visual representations. In order to express paralinguistic cues in online communication, people use substitute characters in the written message such as capitalization, letter repetition, and punctuation marks [12, 13]. Studies show that such expressions strengthen emotions and enforce the message in text conversations [3, 19, 23]. While previous work on symbolic representations limit their research to the presence of the expressions, our work reveals findings on the role of Korean emoticons defining the emotional differences controlled by different numbers of characters used in different contexts.

3 METHODS

To investigate how people perceive the underlying emotional intentions in sentences in different situations, we conducted an online survey. We recruited people through posts on online communities and public social media. 86 South Korean participants responded, 40 male and 46 female, aged 19–36 ($M = 23.73$, $SD = 3.31$). The survey consisted of three sections: 1) demographic information, 2) 30 questions asking to evaluate the feeling of arousal in given sentences, and 3) 30 questions asking to evaluate the feeling of pleasantness, both in a 7 point Likert-scale [22]. The sentences combined a short message signaling context among three situations, “*I’m happy.*” (positive), “*I’m here.*” (neutral) or “*I’m sad.*” (negative) and three Korean emoticons, ‘ㅋ’, ‘ㅎ’ (positive connotations resembling the sound of laughing), or ‘ㅠ’ (negative connotation resembling a crying face) [4], used one, two, or multiple ($\times 8$) times. For instance, “*I’m happy ㅋㅋ*” is a sentence generated by combining a positive context message with two positive Korean emoticons.

In order to investigate deeper into the results, we performed a semi-structured interview with 10 survey participants who agreed to participate in the interview, 6 male and 4 female, aged 20–33 ($M = 23.7$, $SD = 3.80$). Our study protocol was reviewed and approved by IRB of the author’s university. We asked questions about their perceptions of the Korean emotion expressing letters, along with some explanation about their experience and specific emotions they feel in certain online communication situations. All interviews were audio-recorded and transcribed with consent.

For the quantitative analysis, we conducted Spearman’s correlation analysis to investigate the relationship of the types of characters and emotions in context specific situations. For the qualitative analysis, two of the authors generated open codes from the interview transcripts. We then iteratively generated themes from the observed patterns.

		ㅋ	ㅎ	ㅠ
Arousal	Correlation Coefficient	.561**	.488**	.028
	Sig (2-tailed)	.000	.000	.361
Pleasantness	Correlation Coefficient	.420**	.401**	-.037
	Sig (2-tailed)	.000	.000	.237

Table 1: The results of a Spearman’s correlation analysis for each Korean emoticons and emotions.

	ㅋ	ㅎ	ㅠ
1	sarcastic, aggressive	sneering, smirking	a bit sad
2	habitual, grinning	a nice smile, a polite smile	a bit sad
8	loud laughter, very funny	happy laughter	playful or very sad

Table 2: We mapped our findings relating the cognition and numbers of Korean emoticons with the emotions they evoke.

4 MAJOR FINDINGS THROUGH STATISTICAL ANALYSIS AND INTERVIEWS

4.1 Different Numbers of Korean Emoticons Evoke Different Emotions

Gathering opinion from the participants, we found that ‘ㅋ’ had an image of loud laughter and fun, while ‘ㅎ’ displayed the emotion of a smile and happiness. ‘ㅠ’ was seen as a sad emotion of crying. The correlation analysis for the overall tendency of emotion for each of the characters revealed statistically significant results for the relationship between ‘ㅋ’, ‘ㅎ’ and the emotion of arousal and pleasantness. However, no significant results were found between ‘ㅠ’ and the two emotional properties (Table 1). As the number of ‘ㅋ’ and ‘ㅎ’ increases, people felt an increase in arousal and pleasantness, whereas ‘ㅠ’ showed no significant results (Table 1). Subsequent interviews supported these findings as most of participants mentioned that repeated characters evoke stronger emotions. P4 mentioned “*The more repeated the letters, the more empathy you feel. It feels more like laughing when others laugh and more grief when others cry.*”

We also found that the subtle emotional differences derived from the different numbers of letters used. Surprisingly, all participants answered that using a single ‘ㅋ’ after a message brought up the emotion of sarcasm and aggression. P3 explained his personal experience “*Yes, I use it sometimes, like texting one ‘ㅋ’. But I don’t use it often. Others may take it personally, and it seems rude. It’s kind of aggressive. ... One ‘ㅋ’ really feels sarcastic, so if I really want to make someone feel bad, I would use it.*” Also, participants tended to feel weak aggression when ‘ㅎ’ is used once. Additionally, we found that people habitually use ‘ㅋ’ and ‘ㅎ’ in pairs without emotional significance along with a message (Table 2).

4.2 Negative Korean Emoticons in a Positive Context Amplifies Positive Emotion

A deeper investigation into the context specific situations revealed more interesting findings. Contrary to our expectations that negative Korean emoticons will evoke negative emotions, both positive and negative emoticons delivered more arousal and pleasant emotions when they were combined with a positive message (Table 3). To extract explanations for this finding, we asked participants about their personal experiences. Participants unanimously noted that ‘ㅠ’ generates a feeling of bursting into tears driven by happiness. In order to emphasize the positive emotion, people exaggerate their emotions by using negative emotion expressing letters. P9 described “*Ah, I’m happy’ used with a lot of ‘ㅠ’s seemed much happier than when used with ‘ㅋ’ or ‘ㅎ’. ... like the emotion of being touched?*”. P4 also explained “*When I do well on a test, if I tell my friends or parents ‘I did well on the test ㅋ ㅋ ㅋ ㅋ’, it seems like I’m*

bragging about it, or making fun of others. But when I text ‘I did well on the test ㅠ ㅠ ㅠ ㅠ’, then it feels like ‘what I’ve been trying for so far has come true!’. Using ‘ㅠ’ makes it more emotional.”

4.3 Positive Korean emoticons in a Negative Context Alleviates Negative Emotion

Results of the correlation analysis revealed that ‘ㅋ’ and ‘ㅎ’ delivered more arousal emotions in a negative context (Table 3). Participants of the interview were again asked to explain about their personal experiences in such situations. P5 explained her personal experience “*A person who was in charge of development just ran away without telling our team. Me and my teammate were so upset and used ㅋ a lot, like ‘Hey, isn’t it just ridiculous? ㅋ ㅋ ㅋ ㅋ ㅋ ㅋ ㅋ ㅋ’ or ‘I was totally dumbfounded ㅋ ㅋ ㅋ ㅋ.’*” We speculate that when a positive emoticon is used in a negative context, the negative emotion decreases because it creates a light and playful tone to the sentence, deducting the seriousness of the message. P8 supported by explaining his thoughts and experience “*Everyone may accept a promise differently, but for me, a promise is very important. ... When I saw it[‘ㅋ’], I felt as if he didn’t take our promise seriously and doesn’t respect my time.*”

4.4 Korean Emoticons in a Neutral Context Have Varying Impacts Depending Largely on Context

Positive characters (‘ㅋ’, ‘ㅎ’) gave rise to the emotion of arousal and pleasantness even in the neutral context, while negative character (‘ㅠ’) showed weak negative correlation with both emotions. Afterwards, we asked questions regarding the emotions felt from the neutral sentences. A distinctive feature compared with a positive or negative context was that in a neutral context, the meaning of the message was largely influenced by the characters itself. Moreover, the meaning and emotions were easily diversified according to the speaker’s intentions. P9 explained “*‘I’m here ㅋ ㅋ ㅋ ㅋ’ is a ‘excited to meet a friend’ kind of thing, and using ㅎ ㅎ has a feeling of meeting a lover, and using ㅠ ㅠ means ‘I’m sorry for being late’, I think.*” P7 also mentioned “*In case of ㅎ ㅎ, it’s little bit like ‘I’m here’ in a daily basis, but if it uses only ㅎ, I definitely feel anger in the sentence like ‘I’m already here!, but you’re not.’*”

5 DISCUSSIONS

We have found that people perceive the speaker’s emotional intentions differently depending on different repetition of Korean emoticons in different contexts. Drawing upon these findings, we discuss design implications and limitations.

			ㄷ	ㅎ	ㅍ
<i>I'm happy</i> (Happy)	Arousal	Correlation Coefficient	.613**	.570**	.458**
		Sig (2-tailed)	.000	.000	.000
	Pleasantness	Correlation Coefficient	.535**	.580**	.457**
		Sig (2-tailed)	.000	.000	.000
<i>I'm here</i> (Neutral)	Arousal	Correlation Coefficient	.665**	.707**	-.151**
		Sig (2-tailed)	.000	.000	.005
	Pleasantness	Correlation Coefficient	.571**	.628**	-.244**
		Sig (2-tailed)	.000	.000	.000
<i>I'm sad</i> (Sad)	Arousal	Correlation Coefficient	.506**	.361**	-.176**
		Sig (2-tailed)	.000	.000	.001
	Pleasantness	Correlation Coefficient	.353**	.243**	-.292**
		Sig (2-tailed)	.000	.000	.000

Table 3: The results of a Spearman's correlation analysis for each Korean emoticons in different contexts.

5.1 Design Implications

5.1.1 Emotionally accurate translation design. Platforms such as YouTube and Instagram see frequent international and inter-cultural interactions, with people from various backgrounds commenting on a post in different languages [14]. To increase user engagement, these platforms offer translation services, but the results fail to accurately translate emotional intentions of the speaker [10]. We propose that for more accurate text suggestions, emotional values of certain contexts and emoticon repetitions explored in our findings need to be considered. This will reduce the chance of incorrect translations and help break down cultural-emotional barriers of different languages.

5.1.2 AI-mediated communication protocol design. The advancement of AI services present opportunities for unique interactions with the intelligent agent, namely via conversations using text or speech. When designing a AI-Mediated Communication (AI-MC) protocol, it is crucial to avoid loss of trust due to the Replicant Effect [9]—and by extension, to properly implement and respond to emotion expressing letters. Full integration of Korean emoticons will produce more flexible and natural conversation that helps convey intricate emotions appropriate for a wider range of situations.

5.2 Limitations and Future Works

Our study has a few limitations. First, our user study was conducted on a limited pool of participants of similar demographics—Korean university students in their early to mid 20s. Therefore, it may be difficult to extend our results to other age groups. Furthermore, research exploring subtleties in emotional expressions in other languages and comparing the results should be done for design implementations. Finally, the two axis of arousal and pleasantness cannot fully represent the diverse emotions people feel. Further research exploring a wider range of emotions is needed in order to fully grasp the emotional impact of Korean emoticons.

REFERENCES

- [1] Bianca Bosker. 2014. How Emoji Get Lost In Translation. *Huffington Post* 27 (2014).
- [2] B Danet, L Ruedenberg-Wright, and Y Rosenbaum-Tamari. 2000. (1997). "HMMM... WHERE'S THAT SMOKE COMING FROM?" Writing, play and performance on Internet Relay Chat. *Journal of Computer-Mediated Communication*, 2 (4). Retrieved June 15 (2000).
- [3] Erika Darics. 2013. Non-verbal signalling in digital discourse: The case of letter repetition. *Discourse, context & media* 2, 3 (2013), 141–148.
- [4] Hyo Jin Do and Ho-Jin Choi. 2015. Korean twitter emotion classification using automatically built emotion lexicons and fine-grained features. In *Proceedings of the 29th Pacific Asia Conference on Language, Information and Computation: Posters*. 142–150.
- [5] Brigitte Fischer and Cornelia Herbert. 2021. Emoji as Affective Symbols: Affective judgments of emoji, emoticons and human faces varying in emotional content. *Frontiers in psychology* 12 (2021), 1019.
- [6] Yuka Fujimoto, Nasya Bahfen, Jan Fermelis, and Charmine EJ Härtel. 2007. The global village: online cross-cultural communication and HRM. *Cross Cultural Management: An International Journal* (2007).
- [7] Shlomo Hareli, Konstantinos Kafetsios, and Ursula Hess. 2015. A cross-cultural study on emotion expression and the learning of social norms. *Frontiers in psychology* 6 (2015), 1501.
- [8] David A Huffaker and Sandra L Calvert. 2005. Gender, identity, and language use in teenage blogs. *Journal of computer-mediated communication* 10, 2 (2005), JCMC10211.
- [9] Maurice Jakesch, Megan French, Xiao Ma, Jeffrey T Hancock, and Mor Naaman. 2019. AI-mediated communication: How the perception that profile text was written by AI affects trustworthiness. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*. 1–13.
- [10] Xiaona Jiang. 2017. Research on the Building of Emotion Metaphor Corpus Based On Machine Translation. *Journal of Digital Information Management* 15, 4 (2017).
- [11] Yoram M Kalman and Darren Gergle. 2009. Letter and punctuation mark repeats as cues in computer-mediated communication. In *95th annual meeting of the National Communication Association in Chicago, IL*. Citeseer.
- [12] Yoram M Kalman and Darren Gergle. 2014. Letter repetitions in computer-mediated communication: A unique link between spoken and online language. *Computers in Human Behavior* 34 (2014), 187–193.
- [13] Martin Lea and Russell Spears. 1992. Paralanguage and social perception in computer-mediated communication. *Journal of Organizational Computing and Electronic Commerce* 2, 3-4 (1992), 321–341.
- [14] Seryun Lee. 2021. An Exploration of Lingua-Cultures on YouTube: Translation and Assemblages. *Social Media+ Society* 7, 4 (2021), 20563051211059261.
- [15] Shao-Kang Lo. 2008. The nonverbal communication functions of emoticons in computer-mediated communication. *Cyberpsychology & behavior* 11, 5 (2008), 595–597.
- [16] Megan Logan. 2015. We're all using these emoji wrong. Retrieved from (2015).
- [17] Hannah Jean Miller, Jacob Thebault-Spieker, Shuo Chang, Isaac Johnson, Loren Terveen, and Brent Hecht. 2016. "Blissfully Happy" or "Ready to Fight": Varying Interpretations of Emoji. In *Tenth international AAAI conference on web and social media*.
- [18] Duyen T Nguyen and Susan R Fussell. 2013. Effect of message content on communication processes in intercultural and same-culture instant messaging conversations. In *Proceedings of the 2013 conference on Computer supported cooperative work*. 19–32.
- [19] Irina Pak and Phoeey Lee Teh. 2018. Value of expressions behind the letter capitalization in product reviews. In *Proceedings of the 2018 7th International Conference on Software and Computer Applications*. 147–152.
- [20] Jung Ran Park and Houda El Mimouni. 2020. Emoticons and non-verbal communications across Arabic, English, and Korean Tweets. *Global Knowledge, Memory*

- and Communication* (2020).
- [21] Umashanthi Pavalanathan and Jacob Eisenstein. 2015. Emoticons vs. emojis on Twitter: A causal inference approach. *arXiv preprint arXiv:1510.08480* (2015).
- [22] James A Russell. 1980. A circumplex model of affect. *Journal of personality and social psychology* 39, 6 (1980), 1161.
- [23] Phoey Lee Teh, Paul Rayson, Irina Pak, and Scott Piao. 2015. Sentiment analysis tools should take account of the number of exclamation marks!!!. In *Proceedings of the 17th International Conference on Information Integration and Web-based Applications & Services*. 1–6.
- [24] Ilona Vandergriff. 2013. Emotive communication online: A contextual analysis of computer-mediated communication (CMC) cues. *Journal of Pragmatics* 51 (2013), 1–12.
- [25] Ae-Sun Yoon and Hyuk-Chul Kwon. 2010. Component analysis for constructing an emotion ontology. *Korean Journal of Cognitive Science* 21, 1 (2010), 157–175.
- [26] Masaki Yuki, William W Maddux, and Takahiko Masuda. 2007. Are the windows to the soul the same in the East and West? Cultural differences in using the eyes and mouth as cues to recognize emotions in Japan and the United States. *Journal of Experimental Social Psychology* 43, 2 (2007), 303–311.