

Designing Emotive Translation Bubbles to Improve the Live Stream User Experience for Global K-pop Fans

Zayn J. Abbas, Pham Sky Truong, Leila Homaeian, Stacey D. Scott*

School of Computer Science, University of Guelph, Guelph, Ontario, Canada N1G 2W1

ABSTRACT

Given the shortcomings of Machine Translation (MT) algorithms, HCI researchers have investigated ways to supplement the output to facilitate communication grounding. We explore the impact of emotive translation bubbles on South Korean pop music (K-pop) fans' experiences in live stream chats with artists. K-pop artists hold regular live events for casual conversations with fans, making fans feel emotionally close to their artists. However, language and cultural differences can create barriers for foreign fans to connect with artists and Korean-speaking members of their fan community. Informal feedback on our designs showed people enjoyed the visual expression of emotions provided by emotive translation bubbles.

Keywords: Machine translation, fandom, speech bubbles

Index Terms: Human-centred computing → Collaborative and social computing

1 INTRODUCTION

A fandom is a community with a shared interest in a media content (e.g., music). Fandoms give their members a sense of community and the associated psychological benefits, such as increased self-esteem [8], and a sense of belonging [9, 11]. Online fandoms can also promote inclusivity as they allow geographically distributed people with different abilities, culture, and language to connect with each other [5, 10]. Fans can also develop deep emotional connections – or parasocial relationships – to the celebrities they follow [3]. Such parasocial relationships can provide fans additional positive psychological benefits [7].

Yet, language and cultural differences in global fandoms can create accessibility barriers. Integration of MT into many social media platforms are helpful, yet, current MT models are imperfect, and errors and out-of-context translations frequently occur [8]. This paper explores enhancing MT output using interface design to increase content understanding.

As a case study, we focus on K-pop fandoms. K-pop is a cultural phenomenon that has grown globally with fans across many languages and cultures [12]. K-pop artists regularly hold live stream events on social media to engage with fans. These “lives” can create strong emotions in fans [6], fostering parasocial relationships. However, live streams are often held in Korean, creating a language barrier for non-Korean speaking fans.

Research has explored supplementing MT output to support communication grounding, i.e., building mutual understanding [2]. For example, highlighting keywords was reported to help with perceived clarity and higher quality of collaboration [4, 8].

In a non-translation context, paralinguistic cues – in the form of expressively shaped speech bubbles added to text-based chat messages – were found to help clarify emotional meaning and improve content understanding [1]. We build on this approach to augmenting text with emotional meaning by using expressive speech bubbles to MT output, which we call *emotive translation bubbles*, to help convey emotions K-pop live stream events.

We mocked-up bubbles representing different emotions, and gathered informal feedback from K-pop fans on their design.

2 DESIGN CONCEPT

Archived live videos of K-pop artists on YouTube® were used to identify common emotions expressed in this communication context. Artists typically expressed subtle rather than extreme emotions. We iteratively designed our emotive translation bubbles to convey the observed emotions. Our designs were informed by design styles used in Japanese manga, Korean webtoons, and comic strips. Our intent was to design bubbles that may be familiar to the audience. Brainstorming sessions were held among the research team to iteratively refine the designs. Choosing simple designs (Figure 1) was intentional. Our main goal at this early stage was to get feedback on the concept of applying expressively shaped speech bubbles applied to MT output from live stream conversations. Designing emotive translation bubbles that closely match a range of emotions is part of our broader ongoing research.

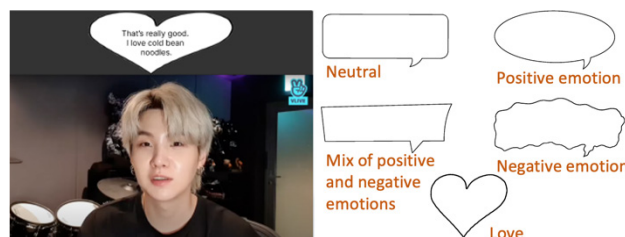


Figure 1: Left: An emotive translation bubble in a live stream event Right: Our emotive translation bubbles and their associated emotion.

3 INFORMAL USER FEEDBACK

Informal feedback sessions with several K-pop fans found that fans enjoyed the visual expression of emotions provided by the emotive translation bubbles. Some fans found the bubbles helpful to understand the overall sentiment and content, especially when the subtitles were changing quickly. Some users reported the bubbles influenced how they felt. Interestingly, the ‘negative emotion’ and ‘love’ bubble designs (Figure 1) led to stronger reactions from the users; they enjoyed the elaborate borders of these bubbles. However, these sessions also revealed large inconsistencies in how users interpreted the emotional meaning of the bubbles.

4 NEXT STEPS

Further design research is needed to enable consistent interpretation of the emotive translation bubbles across users. More work is also needed on how to minimize interference with the live video.

*emails: {abbasr,truongy,lhomaeia,stacey.scott}@uoguelph.ca

REFERENCES

- [1] T. Aoki, R. Chujo, K. Matsui, S. Choi and A. Hautasaari. EmoBalloon - Conveying Emotional Arousal in Text Chats with Speech Balloons. *Proc. Conference on Human Factors in Computing Systems (CHI)*. 16, Article 527, 1–16, 2022. <https://doi.org/10.1145/3491102.3501920>
- [2] H. H. Clark and S. E. Brennan. Grounding in communication. *Perspectives on socially shared cognition*. L.B. Resnick, J.M. Levine, and S.D. Teasley, eds. American Psychological Association. 127–149.
- [3] J. L. Dibble, T. Hartmann, and S. F. Rosaen. Parasocial Interaction and Parasocial Relationship: Conceptual Clarification and a Critical Assessment of Measures. *Hum Commun Res*. 42 (1): 21–44, 2016.
- [4] G. Gao, H. C. Wang, D. Cosley and S. R. Fussell. Same translation but different experience: The effects of highlighting on machine - Translated conversations. *Proc. Conference on Human Factors in Computing Systems (CHI)*. pp. 449–458, 2013. doi: 10.1145/2470654.2470719
- [5] S. Hillman, J. Procyk and C. Neustaedter. “Alksjdf;lksfd”: Tumblr and the fandom user experience. *Proc. Conference on Designing Interactive Systems (DIS)*. pp. 775–784, 2014. doi: 10.1145/2598510.2600887
- [6] R. C. King-O’Riain. “They were having so much fun, so genuinely . . .”: K-pop fan online affect and corroborated authenticity. *New Media Soc*. 23 (9): 2820–2838, 2020. doi: 10.1177/1461444820941194
- [7] A. Kresovich. The Influence of Pop Songs Referencing Anxiety, Depression, and Suicidal Ideation on College Students’ Mental Health Empathy, Stigma, and Behavioral Intentions. *Health Commun*. 37(5): 617–627, 2020. doi: 10.1080/10410236.2020.1859724
- [8] H. Lim, D. Cosley and S. R. Fussell. Beyond Translation: Design and Evaluation of an Emotional and Contextual Knowledge Interface for Foreign Language Social Media Posts. *Proc. Conference on Human Factors in Computing Systems (CHI)*, Article 217, 1–12, 2018. doi: 10.1145/3173574.3173791
- [9] W. Min, D. Y. Jin and B. Han. Transcultural fandom of the Korean Wave in Latin America: through the lens of cultural intimacy and affinity space. *Media Cult Soc*. 41(5): 604–619, 2018. doi: 10.1177/0163443718799403
- [10] P. Obst, L. Zinkiewicz and S. G. Smith. Sense of community in science fiction fandom, Part 1: Understanding sense of community in an international community of interest. *J Community Psychol*. 30(1): 87–103, 2002. doi: 10.1002/jcop.1052
- [11] K. Yoon. Between universes: Fan positionalities in the transnational circulation of K-pop. *Communication and the Public*. 7(4): 188–201, 2022. doi: 10.1177/20570473221136667
- [12] K. Yoon. Theorizing the Korean Wave| Translational Audiences in the Age of Transnational K-Pop. *Int J Commun*. 17, 18 pages, 2022.