

Virtual Co-presenter for DHH livestreamers

Team leader

- Determine the topic
- Experiment design & analysis
- Cooperate with designer for virtual human system
- Paper writing

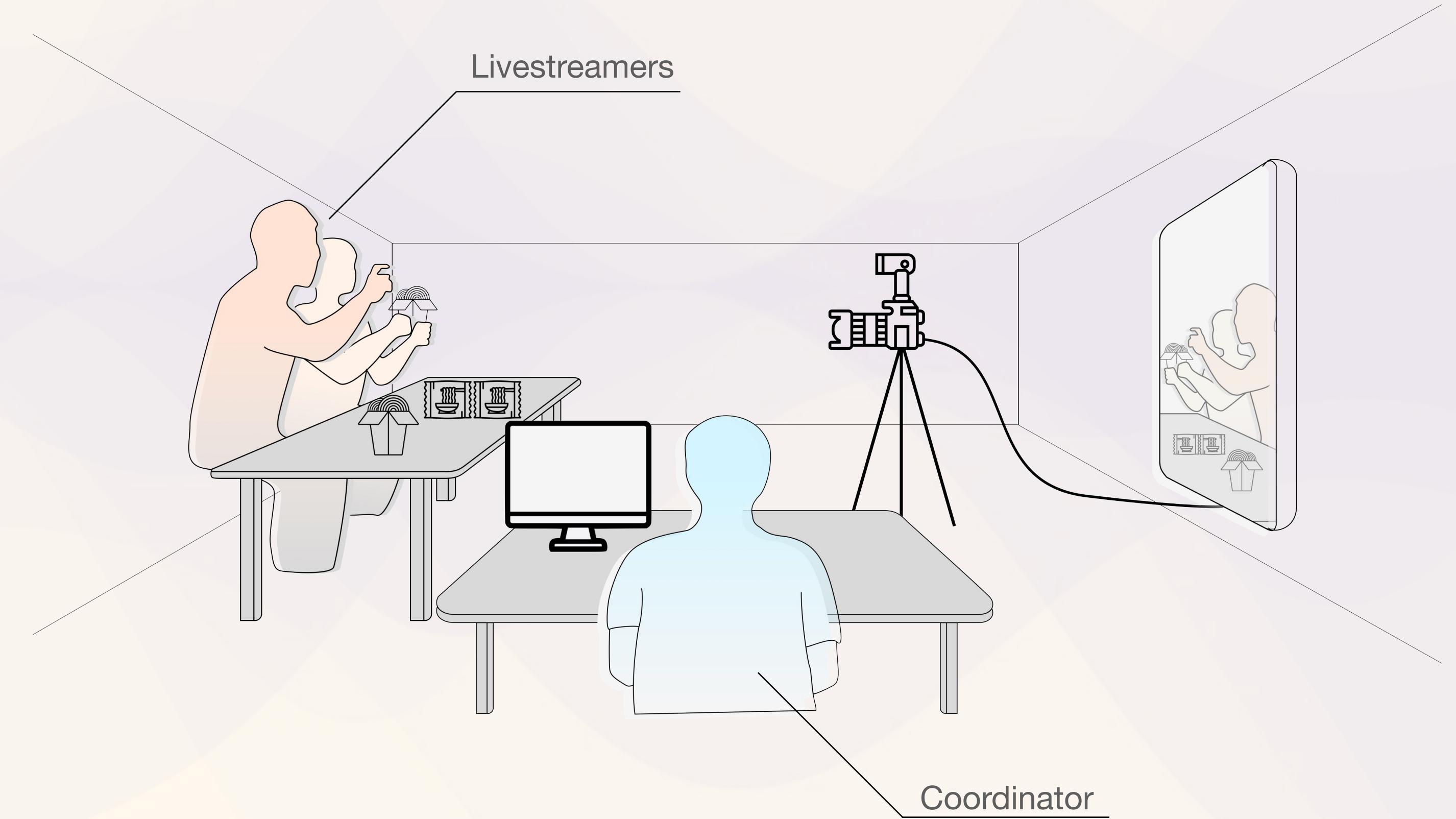
E-commerce Livestreaming

- A popular phenomenon in China that promote products by livestreaming on social media or online shopping platform.
- Voice interaction and emotional communication between livestreamers and audiences.



E-commerce Livestreaming

- Diverse identities of livestreamers: farmer, craftsman, disabled people (DHH, BLV)
- Small live-streaming team: livestreamers and coordinator

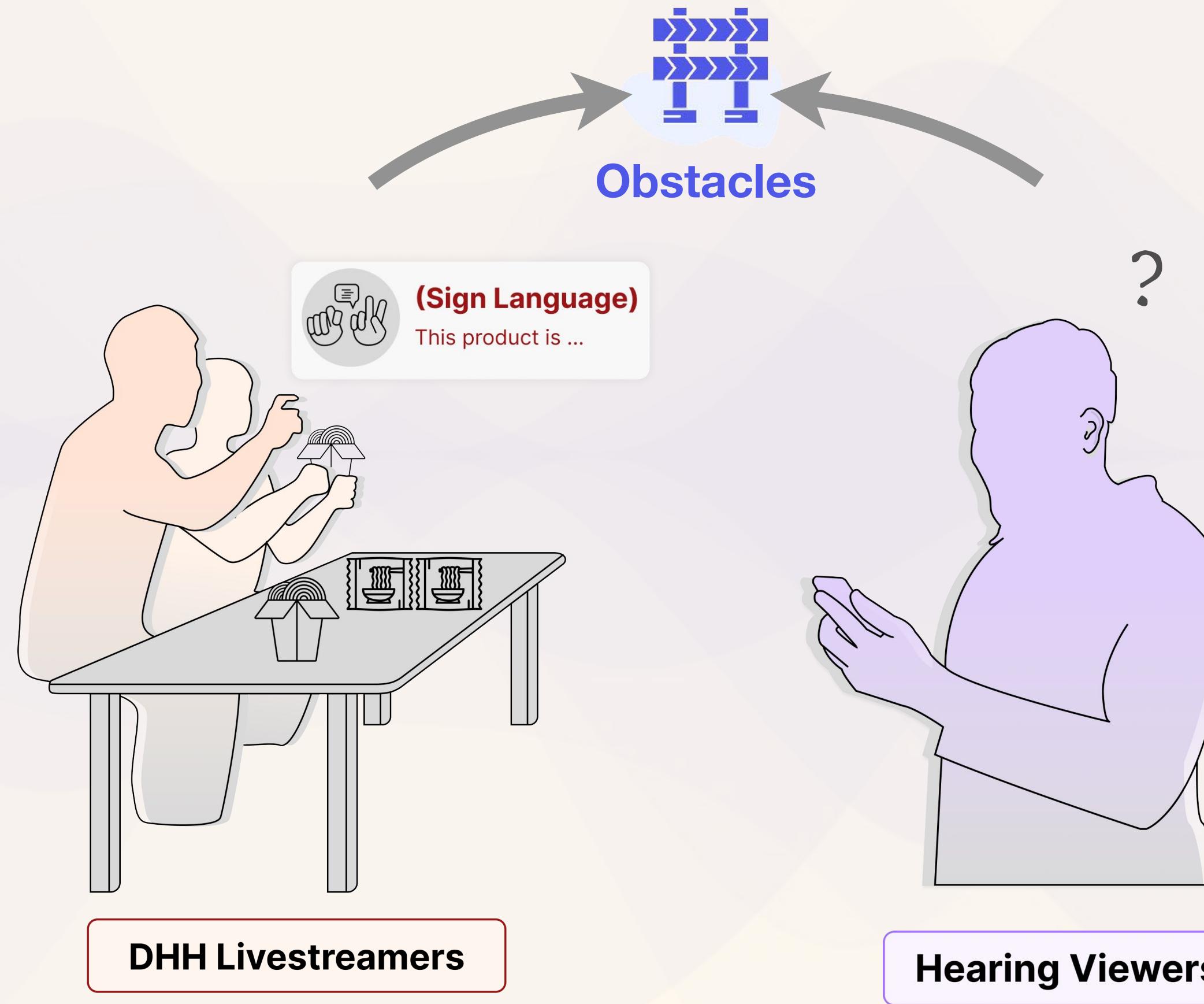


[1] Zhicong Lu, Michelle Annett, Mingming Fan, and Daniel Wigdor. 2019. "I Feel It is My Responsibility to Stream": Streaming and Engaging with Intangible Cultural Heritage through Livestreaming. In Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (Glasgow, Scotland UK) (CHI '19). Association for Computing Machinery, New York, NY, USA, 1–14. <https://doi.org/10.1145/3290605.3300459>

[2] Ningjing Tang, Lei Tao, Bo Wen, and Zhicong Lu. 2022. Dare to Dream, Dare to Livestream: How E-Commerce Livestreaming Empowers Chinese Rural Women (CHI '22). Association for Computing Machinery, New York, NY, USA, Article 297, 13 pages. <https://doi.org/10.1145/3491102.3517634>

[3] Beiyang Cao, Changyang He, Muzhi Zhou, and Mingming Fan. 2023. Sparkling Silence: Practices and Challenges of Livestreaming Among Deaf or Hard of Hearing Streamers. In Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems. 1–15.

DHH E-commerce Livestreaming

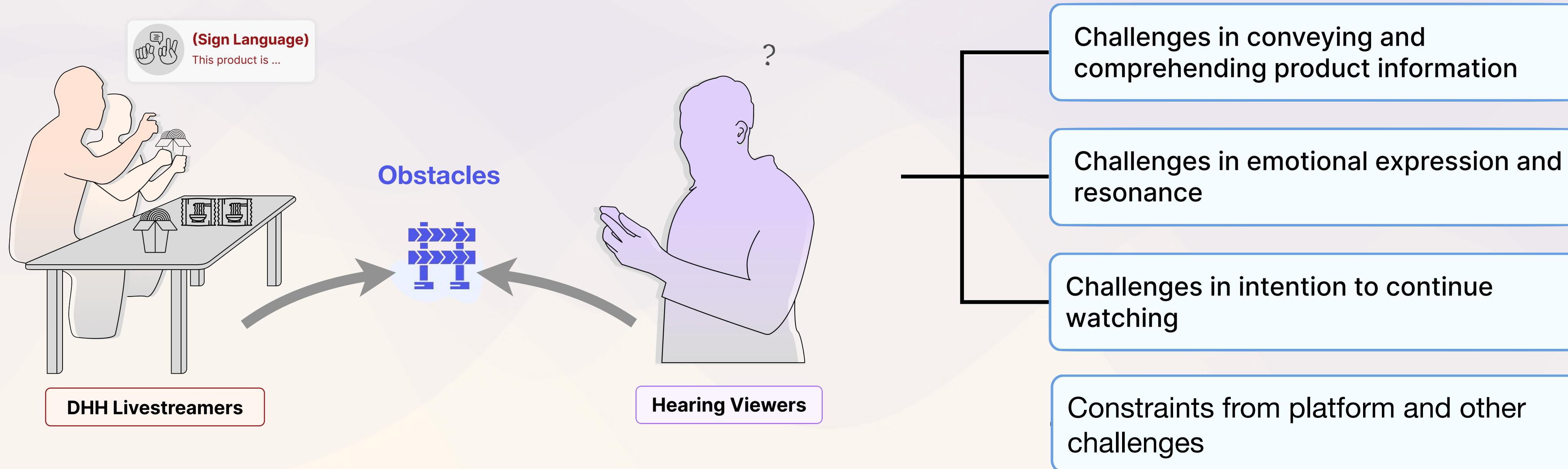


We plan to hire some hearing live streamers who can understand sign language to help us. We hope to attract more hearing audiences watching and consuming in our livestreaming.

Recent:
“It is difficult to find hearing people who can understand sign language, so this plan has been shelved for now, and we are also reducing the frequency of live-streaming because of the low profit.”

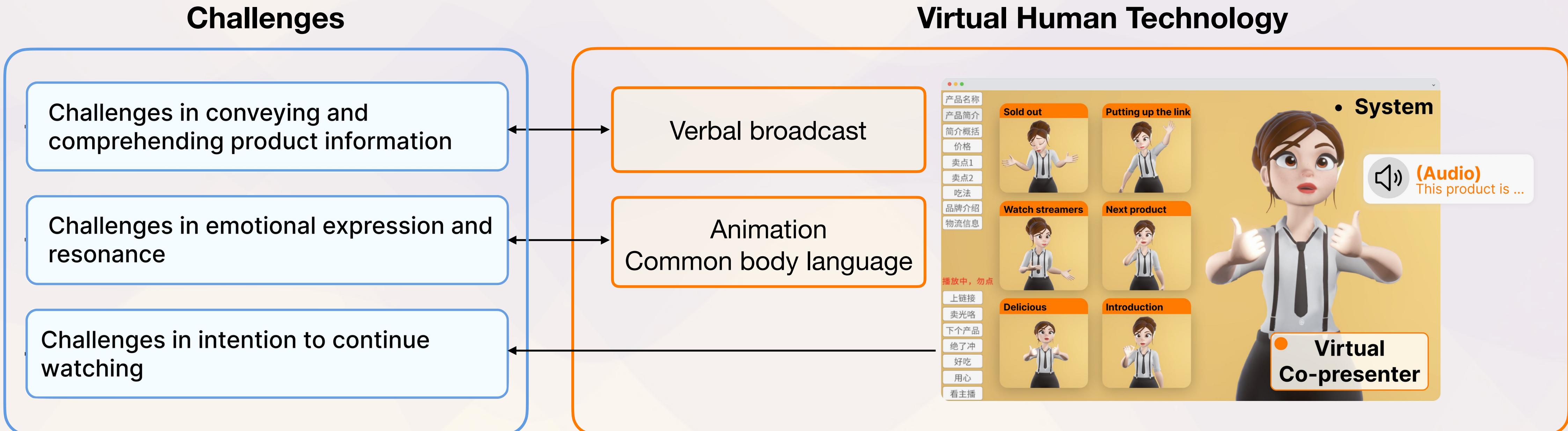
Formative study

- Real-world challenges in DHH e-commerce live-streaming with **hearing viewers**
- Semi-structured interview with 4 DHH livestreamers and 15 hearing viewers.
- **RQ1.1:** What are the main challenges DHH livestreamers are facing in connecting hearing viewers?
- **RQ1.2:** What are the main obstacles that deter hearing viewers' engagement in DHH livestreaming?



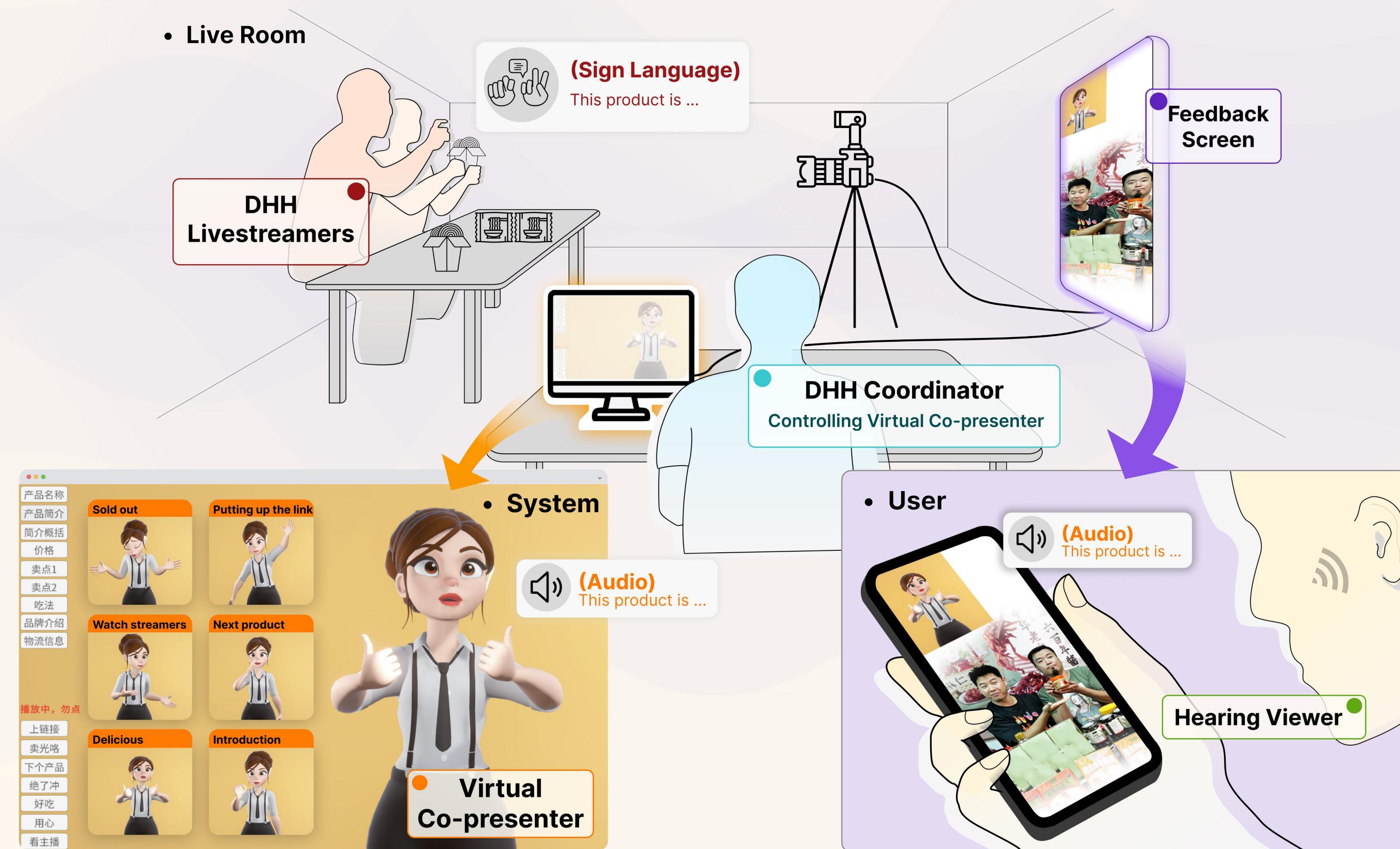
Why virtual human technology?

- Interpreter: costly and scarce.
- Real-time translation: still not well-developed in Chinese sign language.
- **Virtual human: verbal broadcast + animation template -> cost-effective and efficient!**



Virtual Co-presenter

- Participatory design method: DHH livestreamers, hearing viewers, animation designer
- **System:** Virtual human (pre-script verbal broadcast & animation templates)
- For DHH livestreamers: under control; no extra preparation.



Product Name

Product Introduction

Product Brief

Pricing

Product Feature 1

Product Feature 2

Usage & Experience

Brand Information

Delivery information

Now Playing ...

Putting up the link

Soldout

Next product

Go for it

Delicious

Make with great care

Watch livestreamers

Product-related
verbal broadcasts

&

Speech-associated
animations

Emotionally-
enhanced
animations



Virtual Co-presenter System using experience evaluation

- System improve **information perception**, enhance the hearing viewers' **engagement** of DHH livestreaming, encourage **continue watching** and supporting, and support the **predominant role** of DHH livestreamers.
- Cost-effective, efficient, and user-friendly assistance that enhance accessible communication.
- Better than interpreter and real-time translation.

