

# Multimodal Communicative Signals Facilitating Communicative Success For Hard-Of-Hearing Individuals In Noisy Contexts

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## Motivation

Despite the use of hearing aids, people who are hard-of-hearing experience difficulties communicating in noise. Multimodal strategies might be a promising avenue.

## Background

Communication is inherently multimodal<sup>1</sup> and conversations rely on joint meaning-making between interlocutors<sup>2</sup>. We are interested in the quantitative and qualitative differences in multimodal communicative strategies between hard-of-hearing and normal hearing individuals, specifically those contributing to communicative success.

## Online Study

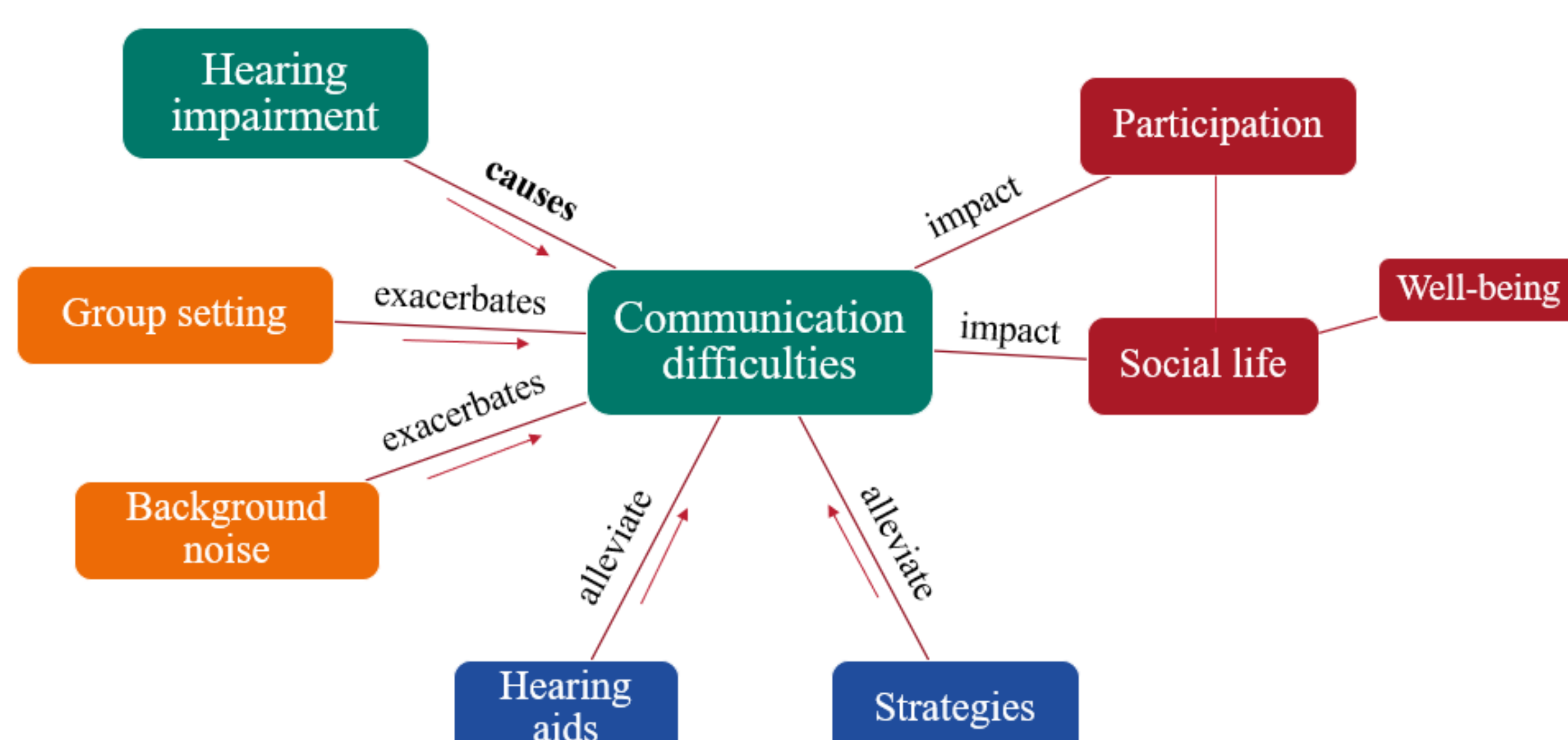
In an online questionnaire, we collected data from 371 hard-of-hearing individuals in the Netherlands.

 60% ♀ 38% ♂ 2% ♂  
weighted age:  $\mu = 64.1$  ( $\sigma = 13.85$ )

We applied a mixed-methods approach for data analysis with frequency counts and descriptive statistics for multiple-choice questions and open and axial coding for open questions. We identified a) challenges in everyday communication and b) strategies to overcome those.

## Results

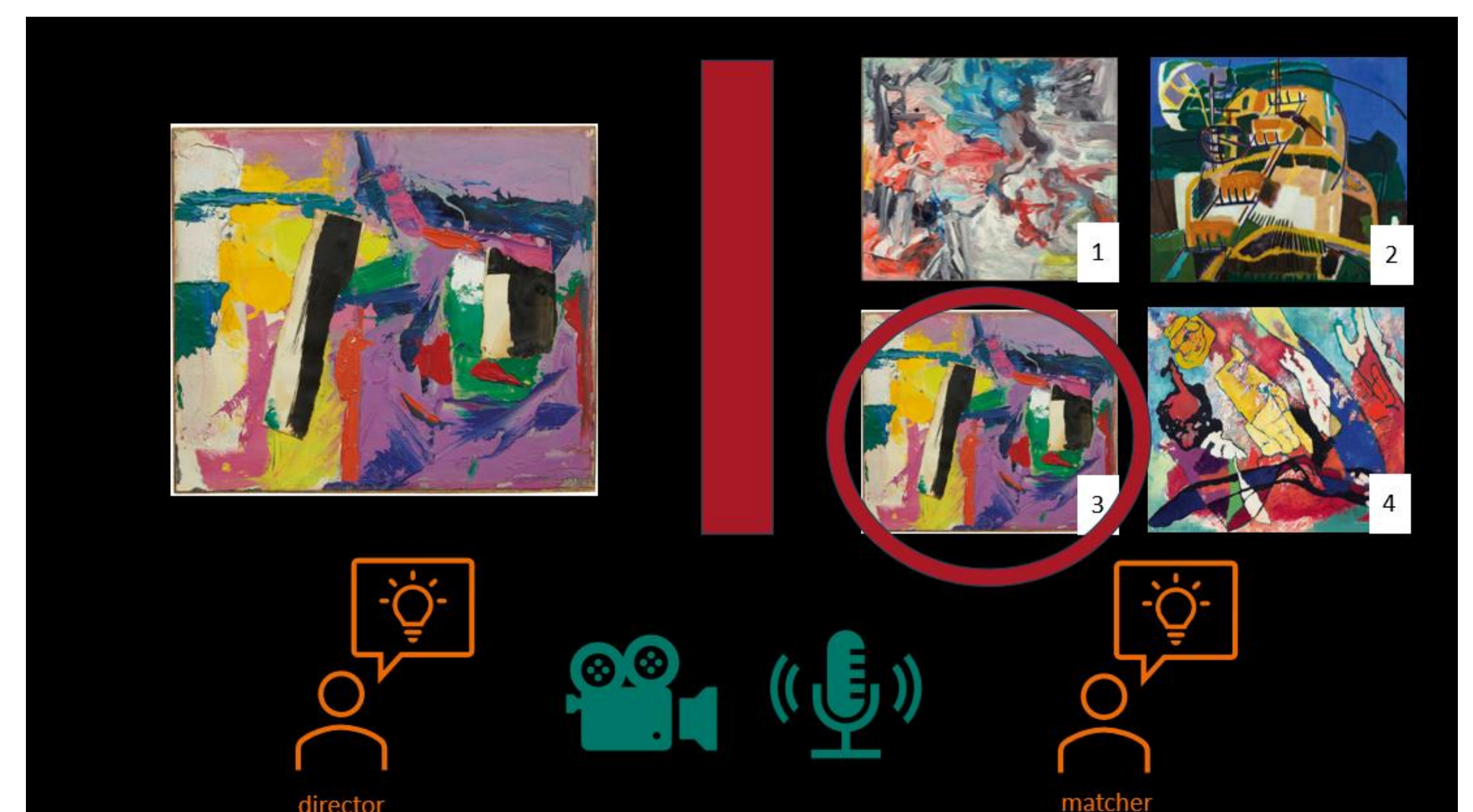
Most participants are not satisfied with the performance of their hearing aids in group settings or background noise. They mostly rely on spoken rather than visual language and express a need for better communicative strategies. Our research tries to contribute to this.



Model based on survey results: impacts on communicative difficulties in orange, challenges in red, consequences in blue

## Outlook: Dialogue Study

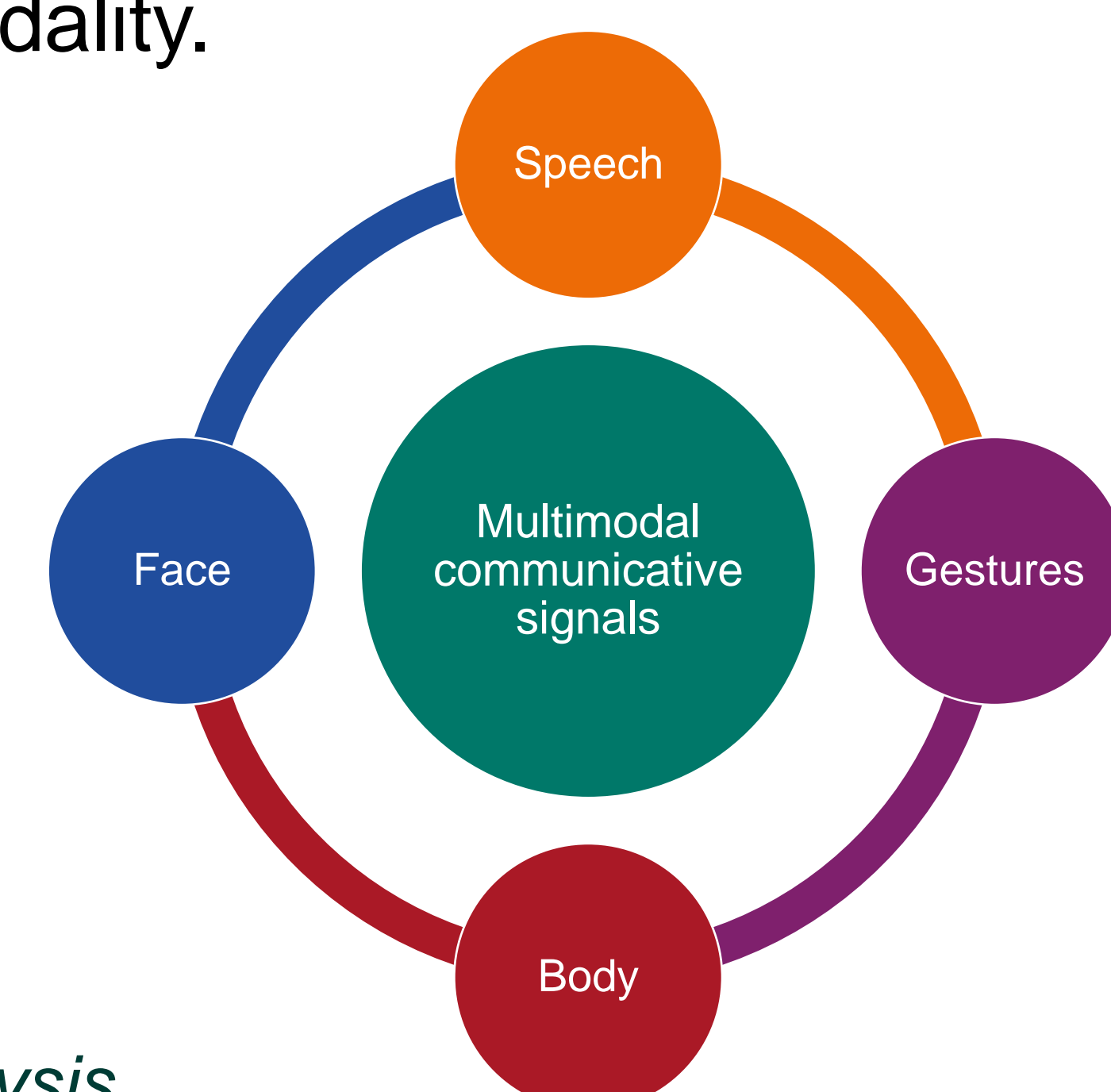
Dyads of hard-of-hearing individuals and dyads of normal hearers in the lab will engage in conversations elicited by a free dialogue task, a cooperative task, and a director-matcher task. In different conditions, social and non-social background noise will be displayed.



Example trial for the director-matcher task.

## Analysis & Hypotheses

Using an exploratory, data-driven analysis approach we will investigate multimodal communicative strategies, as well as alignment between participants across different modalities. Specific attention will lie on the visual modality potentially compensating for the impaired auditory modality.



## Levels of analysis

We expect to find differences between:

- Dyad type (hard-of-hearing vs. normal hearers)
- Background noise type (social vs. non-social)

## References

1. Trujillo, J. P., & Holler, J. (2023). Interactionally Embedded Gestalt Principles of Multimodal Human Communication. *Perspectives on Psychological Science*, 18(5), 1136–1159. <https://doi.org/10.1177/17456916221141422v>
2. Clark, H. H. (1996). *Using language*. Cambridge University Press. <https://doi.org/10.2277/0521561582>