

What makes human-computer speech-interaction pleasant?

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Introduction

- Highly complex situations - such as driving - demand well-designed speech-interaction to lead to more safety and comfort.
- Especially older drivers who are reluctant to use new technologies might profit from a well-designed speech-interaction.

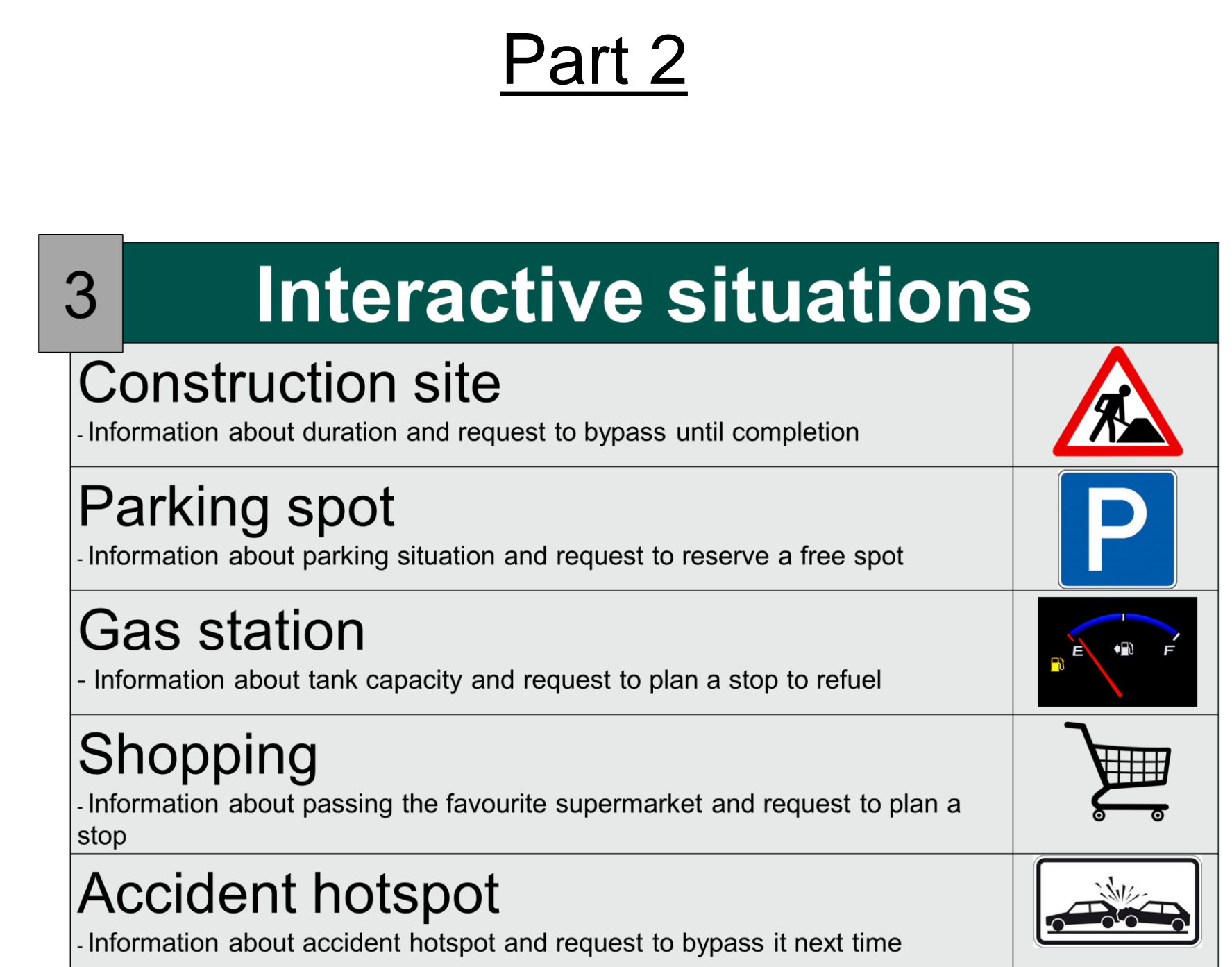
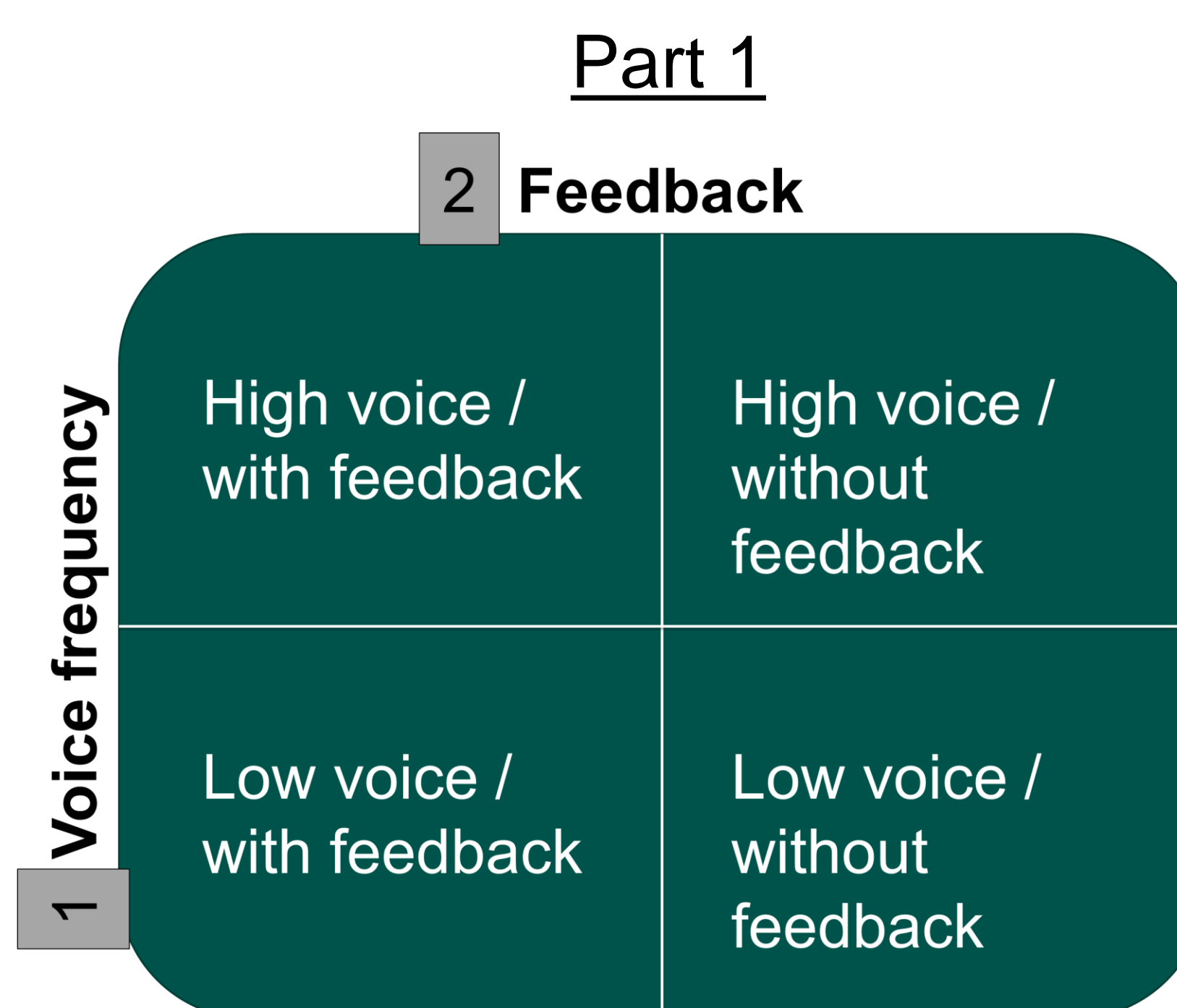
Research questions

In human interactions lower voices are rated better than higher voices	➔	1	Which voice frequency do older people prefer in context of speech-interactions?
Actual speech interfaces use visual feedback including the disadvantage of driver's attention loss	➔	2	Do older people prefer auditive confirmation-like feedback instead of none?
The more common a situation is, the better the acceptance ratings will be	➔	3	In which kind of situations do older people prefer speech-interactions most?

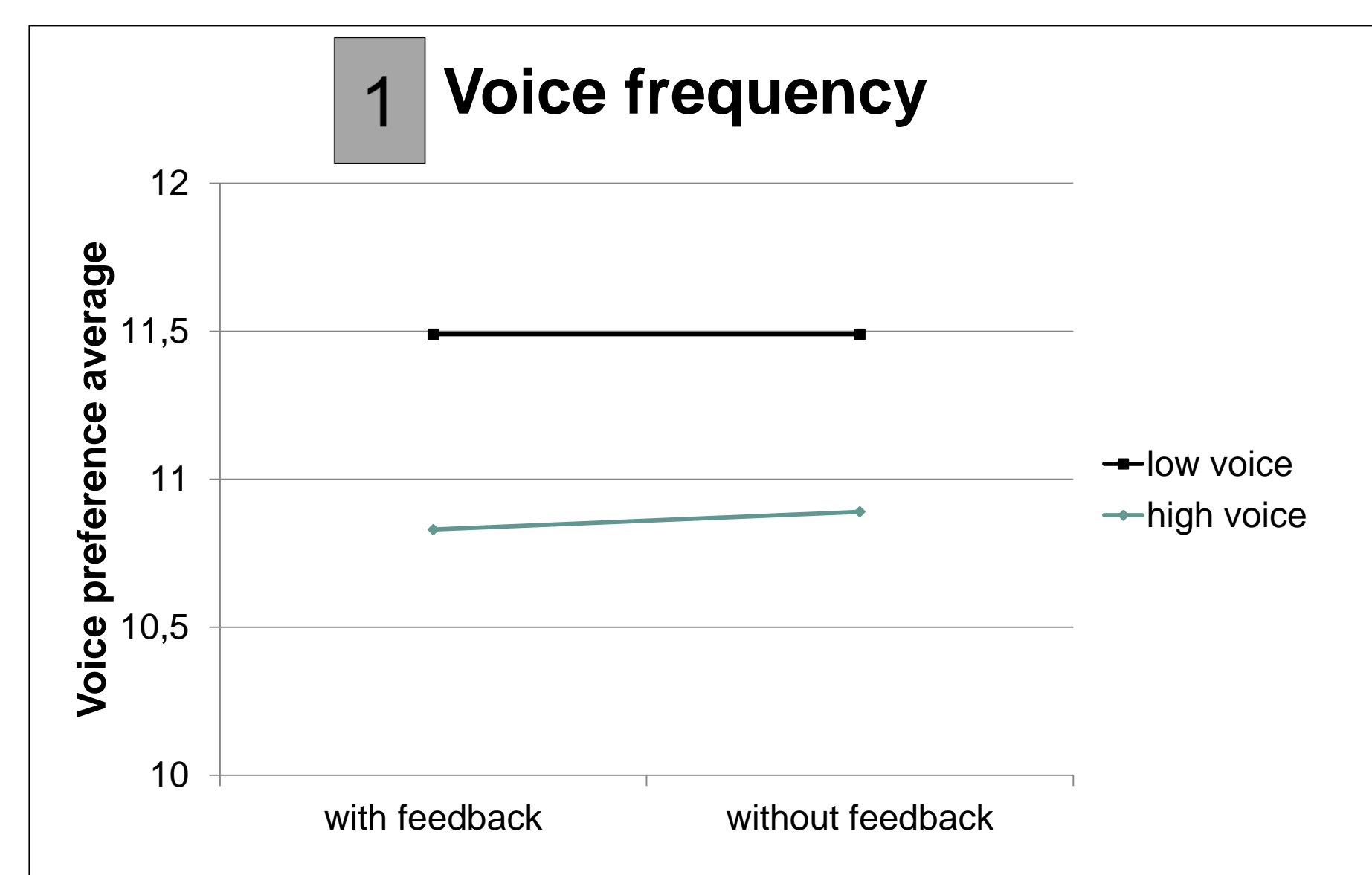
Methods

- Participants: N = 34 drivers; Age: > 65 years (Ø 72)
- Driving simulator study
- Between subjects design
- Independent Variables: Voice frequency, feedback, situation
- Dependent Variable: subjective rating

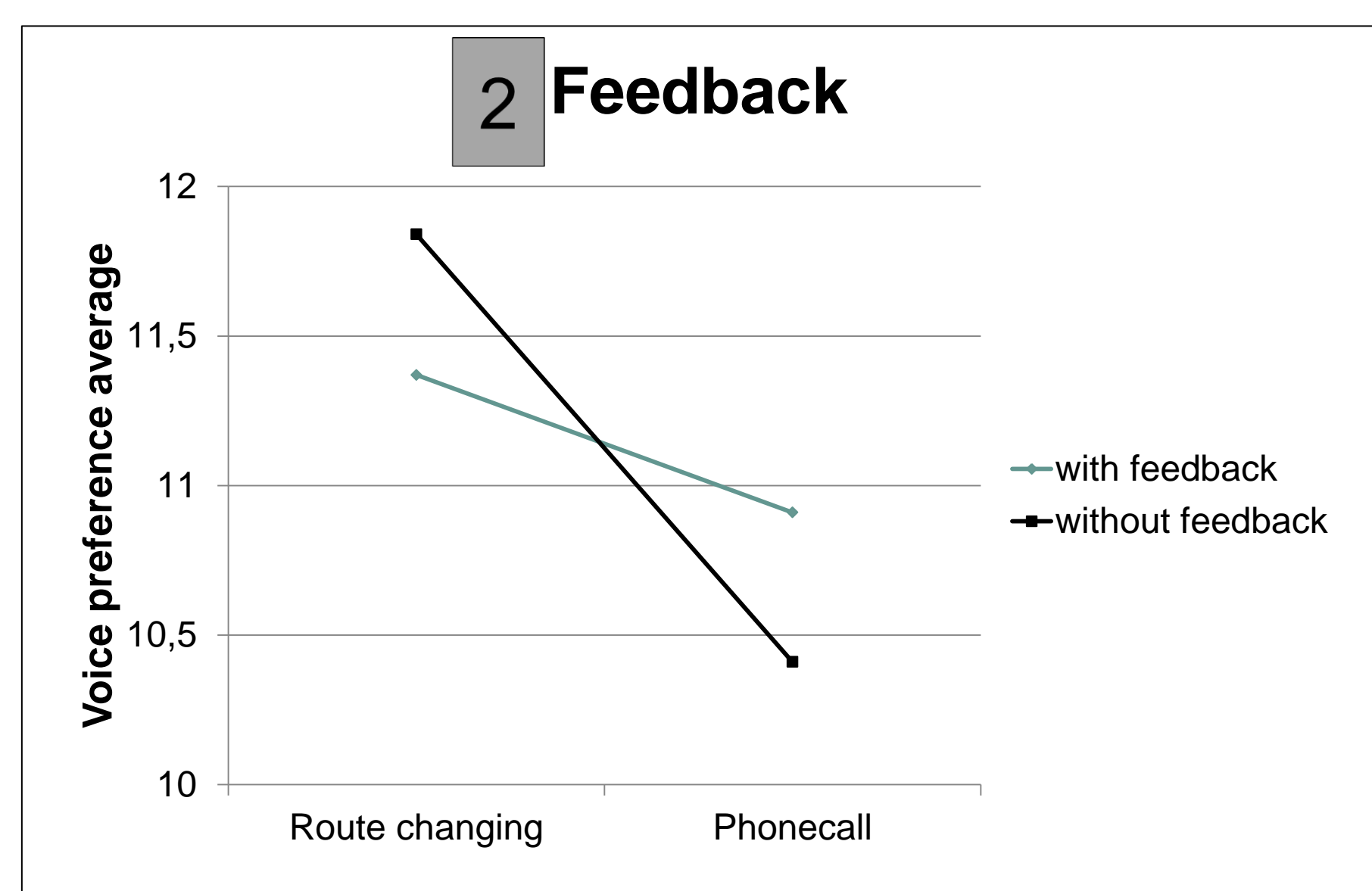
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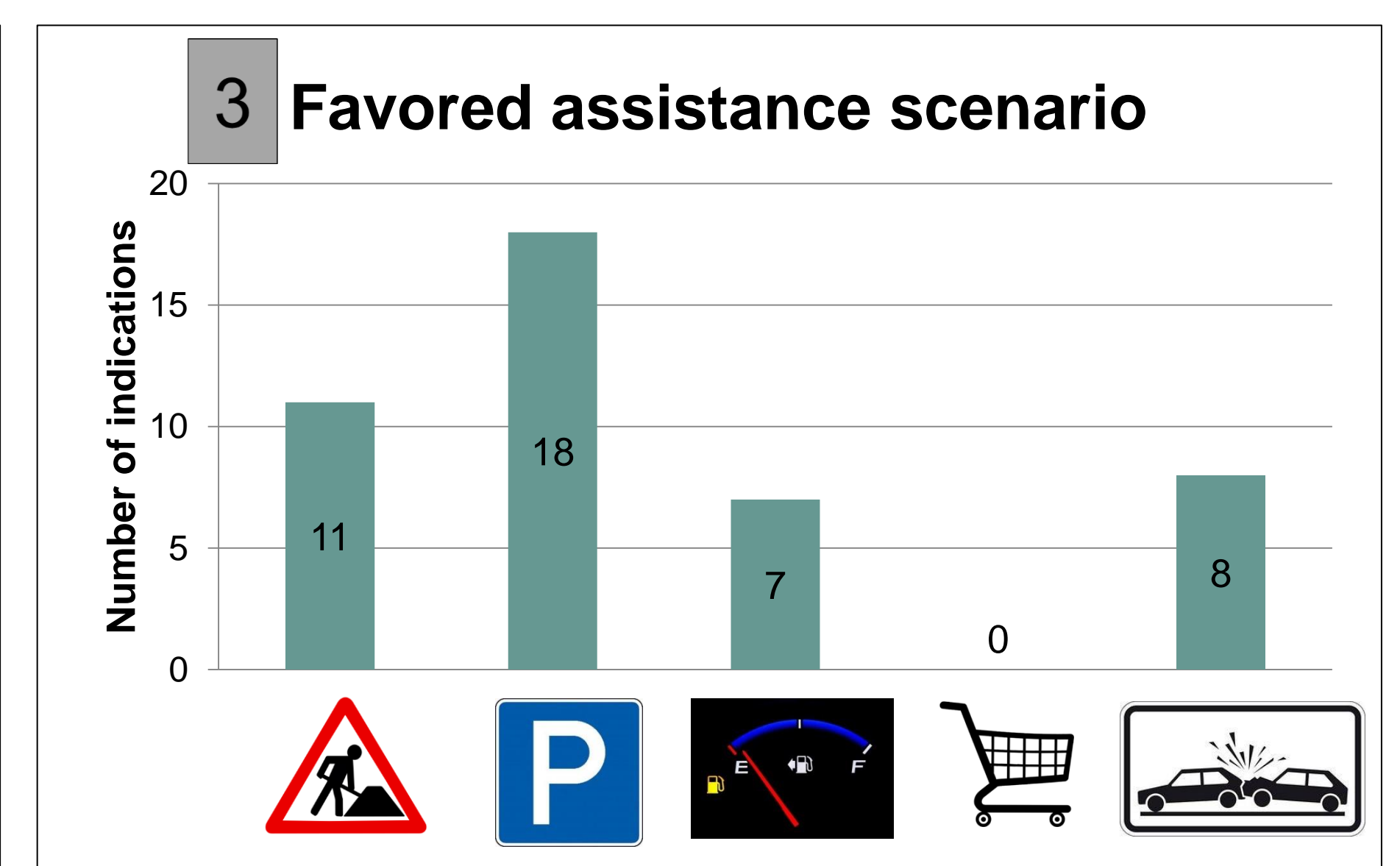
Results



Effect of voice frequency ($F_{(1, 33)}=5.162, p = .030, \eta^2 = .135$)



Interaction of dialogue type and feedback ($F_{(1, 33)}=4.230, p = .048, \eta^2 = .114$)



Parking spot assistance is favored; shopping assistance refused

Discussion

- Overall the results provide support for in-vehicle speech-interaction for older drivers.
- The lower voice is preferred by older drivers. The preference of feedback depends on the type of dialogue.
- The more unpredictable a situation is, the more speech-interaction support is preferred by older drivers.



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