THE ADVANTAGE OF KNOWING THE TALKER

Namita Gehani, Au.D Candidate
Pamela Souza, Ph.D
Department of Communication Sciences and Disorders,
Northwestern University, Evanston, IL

Richard Wright, Ph.D
Department of Linguistics,
University of Washington, Seattle, WA

BACKGROUND

• Patients often understand their spouses better than strangers.
• Communication strategies OR familiarity with the voice?
• Current study- Benefits of long term talker familiarity for older listeners with hearing loss.
COMMUNICATION STRATEGIES

• Spouses or family members constantly adapt to improve communication with their hearing impaired partner.
  - Scarinci et al., 2008

• Role of communication strategies in improving communication within couples.
  - Preminger, 2008

TALKER FAMILIARITY

• Voice recognition improves word recognition in quiet and in noise.
  - Palmeri et al., 1993; Nygaard & Pisoni, 1998; Newman & Evers, 2007

• Talker identity used with stored lexical information.
  - Remez et al., 2007, Palmeri et al., 1993; Nygaard et al., 1994

• Lack of generalization to longer utterances.
  - Nygaard & Pisoni, 1998; Yonan & Sommers, 2000
Talker familiarity

• Age deficits.
  - Helfer & Freyman, 2008; Schacter, Church & Osoweicki, 1994

• Same or greater benefit in older listeners.
  - Yonan & Sommers, 2000

• Delayed processing- Greater familiarity effects.
  - McLennan & Luce, 2005

RESEARCH QUESTIONS

• Does long term talker familiarity have an effect on speech understanding in older individuals with hearing impairment?

• Is this effect greater in presence of background noise?

• Does the type of background noise matter?
EXPERIMENT 1

RESEARCH QUESTIONS

• Does long term talker familiarity have an effect on speech understanding in older individuals with hearing impairment?

• Is this effect greater in presence of background noise?

• Does the type of background noise matter?
METHOD

LISTENERS

16 adults = 9 Female + 7 Male
Age = 53-83 yrs (Mean = 71.9 yrs)
Bilateral SNHL
Primary Language = English
METHOD

TALKERS
15 adults = Female
Age = 55-84 yrs (Mean = 70.2 yrs)
Relationship = Spouses (7); Friends (9)
Primary language – English
No speech-language/voice/articulation disorder

METHOD

Talker
• Recorded sentences after familiarization.

Listener
• Audiogram
• Listen to and repeat the sentences- Monaurally.
• Each sentence = 5 key words.
• Talker identity not revealed.
METHOD

STIMULI
• Each listener heard 5 talkers (1 familiar + 4 unfamiliar).

• 3 listening conditions = Quiet, +6 dB SNR and +2 dB SNR speech noise.

• Presentation level = 30-35 dB SL (re: PTA)

EFFECT OF FAMILIARITY AND NOISE LEVEL ON RECOGNITION
INDIVIDUAL SCORES OF EACH LISTENER

EXPERIMENT 2
RESEARCH QUESTIONS

• Does long term talker familiarity have an effect on speech understanding in older individuals with hearing impairment?

• Is this effect greater in presence of background noise?

• *Does the type of background noise matter?*

METHOD

• 13 out of 16 listeners.
• 2 listening conditions = Speech noise and Babble (+2 dB SNR).
• Each listener heard 5 talkers (1 familiar + 4 unfamiliar).
• Presentation level = Same as Expt. 1
EFFECT OF FAMILIARITY AND NOISE TYPE ON RECOGNITION

INDIVIDUAL SCORES OF EACH LISTENER
RESULTS

- Familiarity with talker’s voice DOES improve speech understanding ability in older listeners with hearing loss.
- Both quiet and noisy situations.
- Greater in noise than in quiet.
- Exists for both spouses and friends.
- For each listener, scores for their familiar talker were higher than for each of the unfamiliar talkers they heard.
- Implicit effect- no intentional training.

RESULTS

- Not due to communicative strategies but due to familiarity with voice itself.
- Multitalker babble represents everyday listening environment and introduces informational masking.
- Overall scores were worse for multitalker babble than for speech spectrum noise.
- However, familiarity benefit did not increase for when listening was made more difficult.
- Perhaps owing the maximum limits of familiarity benefit.
IMPLICATIONS

• Normal communication - Explicit familiarity + Visual & Contextual cues – increased familiarity benefit.
• Extensive exposure to familiarity cues – may generalize to various types of utterances.
• Need for understanding factors determining familiarity benefit.

CONCLUSION

Older listeners with hearing loss can benefit from familiarity with the voice of a long-term communication partner, especially in challenging listening conditions.
Acknowledgements

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QUESTIONS ???
EXTRA SLIDES

FAMILIARITY BENEFIT

 Benefit of familiarity (% familiar talker - %

<table>
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<tr>
<th>SNR</th>
<th>2</th>
<th>0</th>
<th>Quiet</th>
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<tr>
<td>Benefit of familiarity</td>
<td>[Graph showing data points and error bars for each SNR level]</td>
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FAMILIARITY BENEFIT AND QUICKSIN

![Graph showing Familiarity Benefit and QuickSIN Impairment](image)

TALKER INTELLIGIBILITY

![Graph showing Talker Intelligibility](image)

N= 15

Error Bars: +/- 1 SE
REFERENCES


REFERENCES contd.