

Teaching Older Adults Language can be Successful When Conditions are Right

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Second Language Learning

- Second language learning is more difficult in later life
- Several years of research have attempted to determine the most effective means of second language training

High Variability Training

- Natural speech tokens are used as training stimuli
- Stimuli are produced by multiple native speakers
- Learners hear multiple tokens and multiple talkers during training
- Feedback is given on each trial

Perrachione et al., 2011

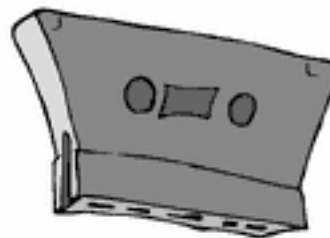
Noting that individual differences in auditory and cognitive performance have been shown to predict second language learning performance, they investigated whether individual differences in pre-training performance interacted with training paradigm to influence learning.

PCPT – Pitch-Contour Perception Test

- Two-alternative forced-choice tone perception
- Performance on this test is correlated with lexical tone learning

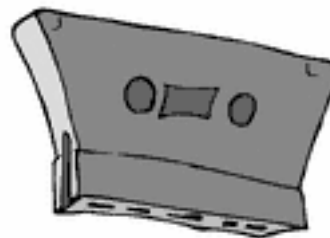
Training – Multi Talker

- Hear three items that differ minimally by tone
 - Talkers are mixed
- After presentation, 3-alternative forced-choice of the trained items
 - Feedback on each trial



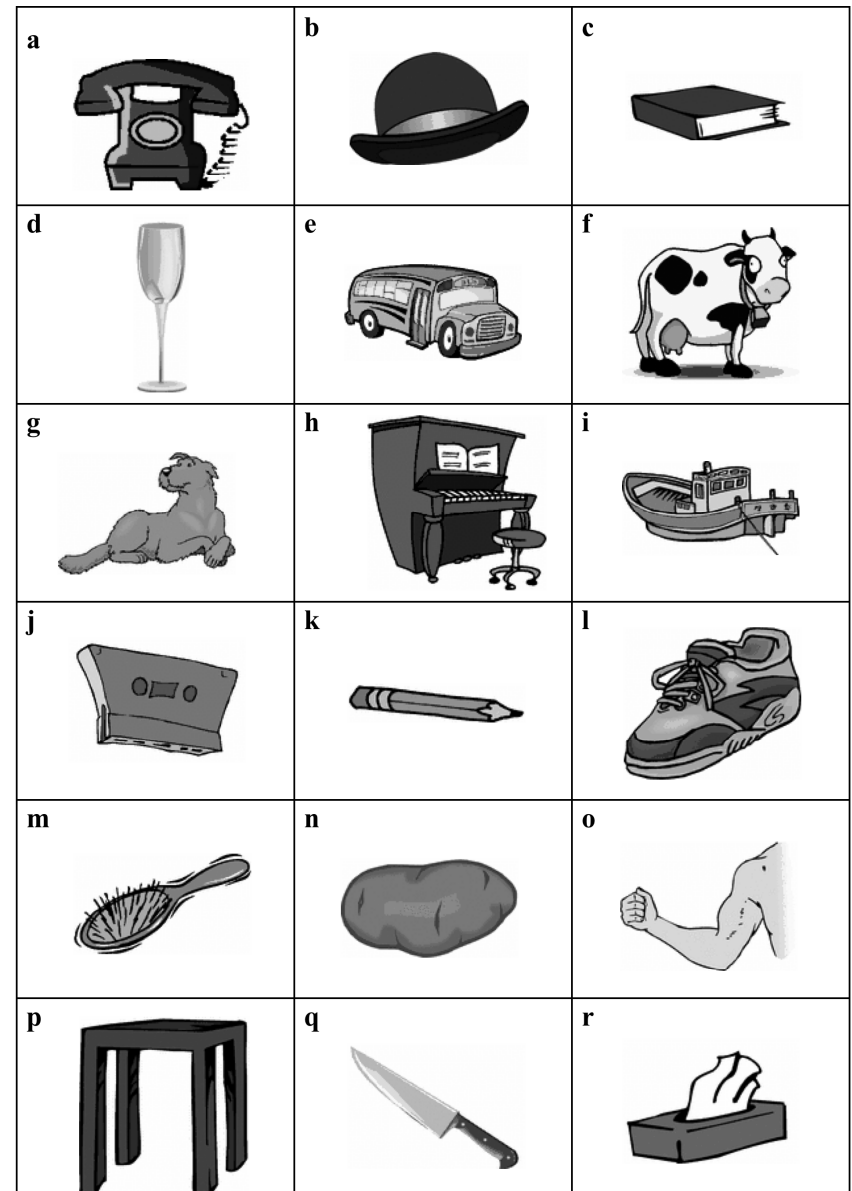
Training – Single Talker

- Hear three items that differ minimally by tone
 - One talker throughout
- After presentation, 3-alternative forced-choice of the trained items
 - Feedback on each trial

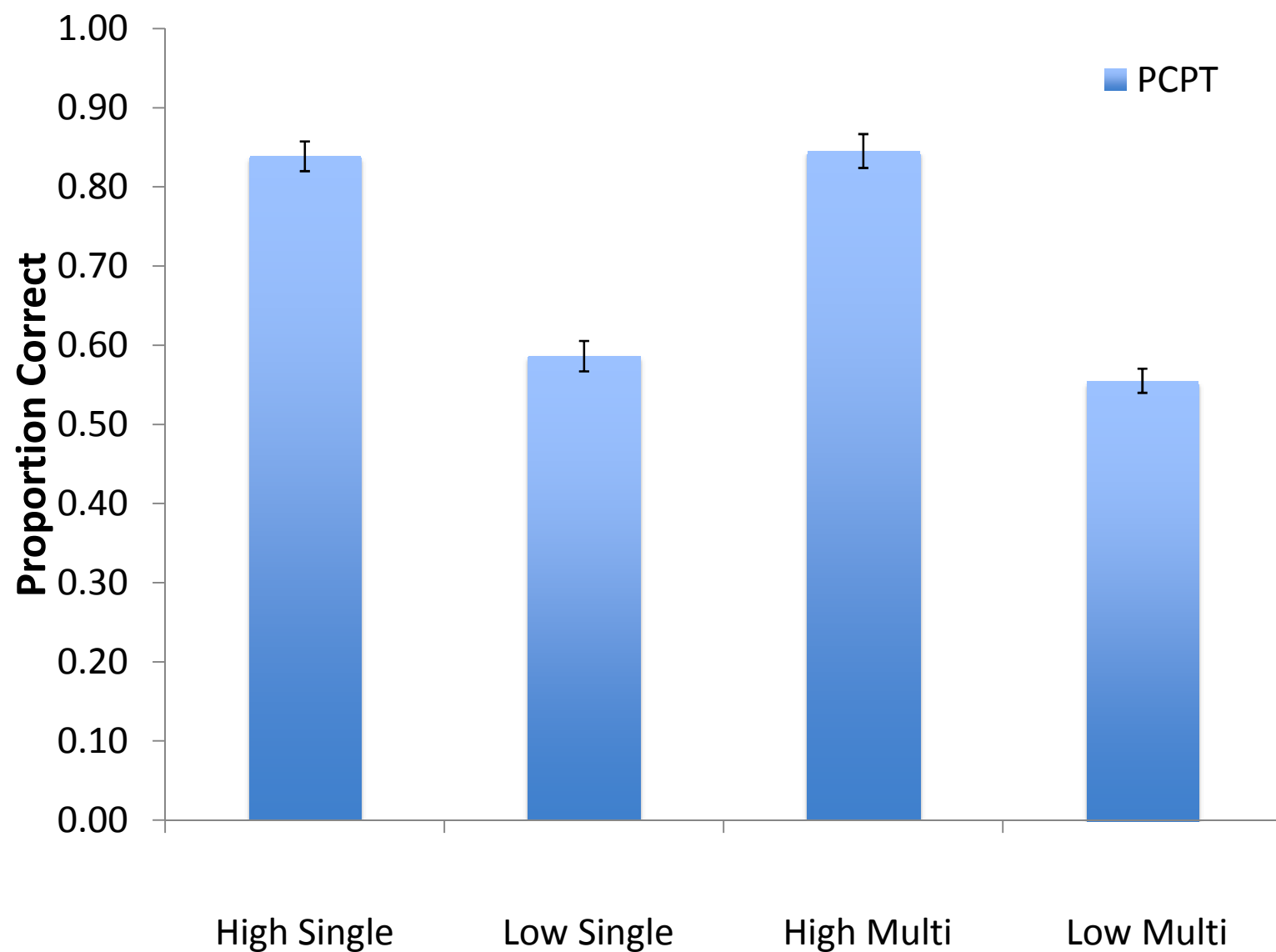


TLA – Test of Learning Achievement

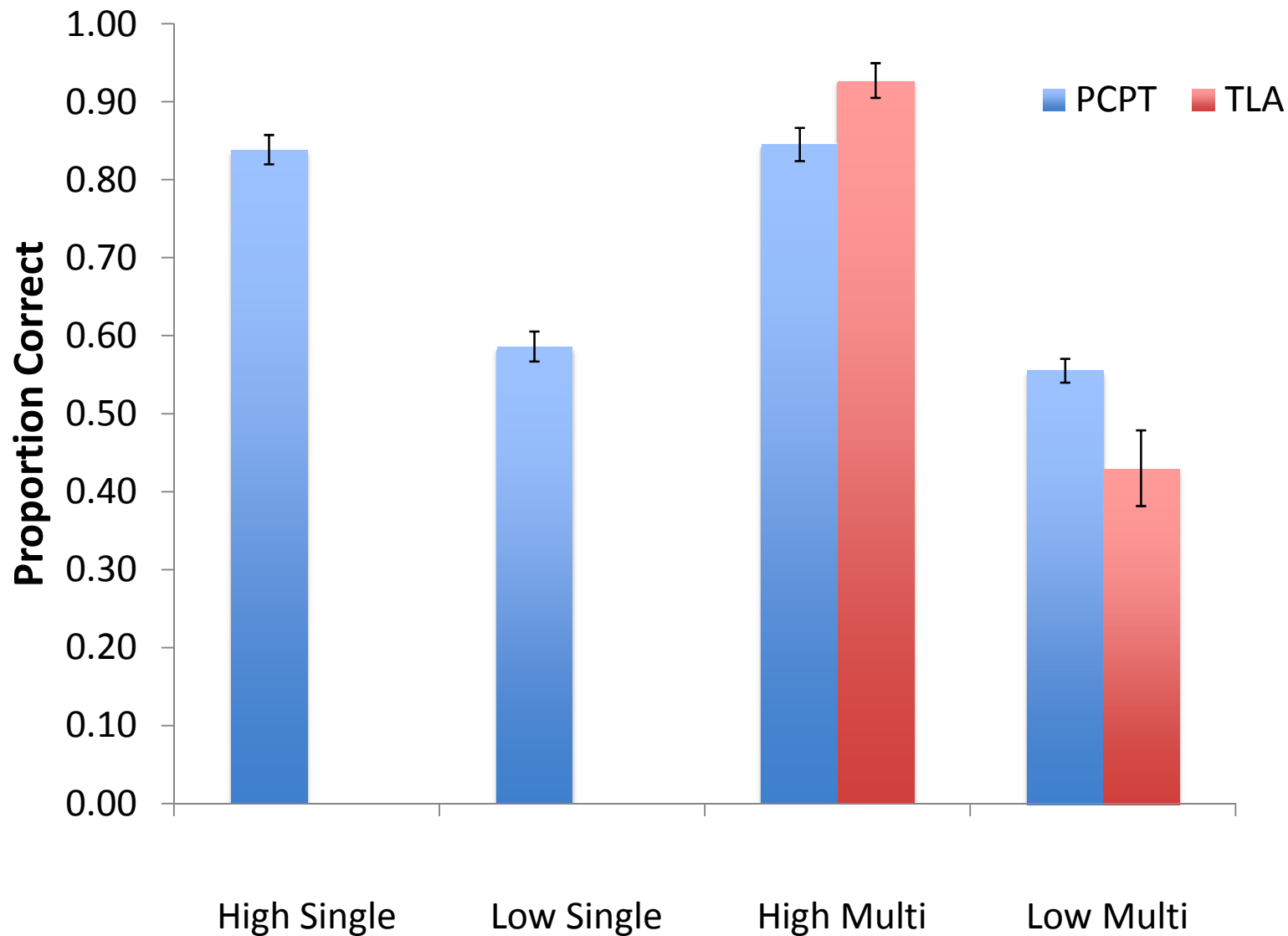
- 18 learned pseudo-words
 - 3 tones x 6 syllables
- 4 novel talkers
- Performance on this test indicates how well learning generalizes to new talkers



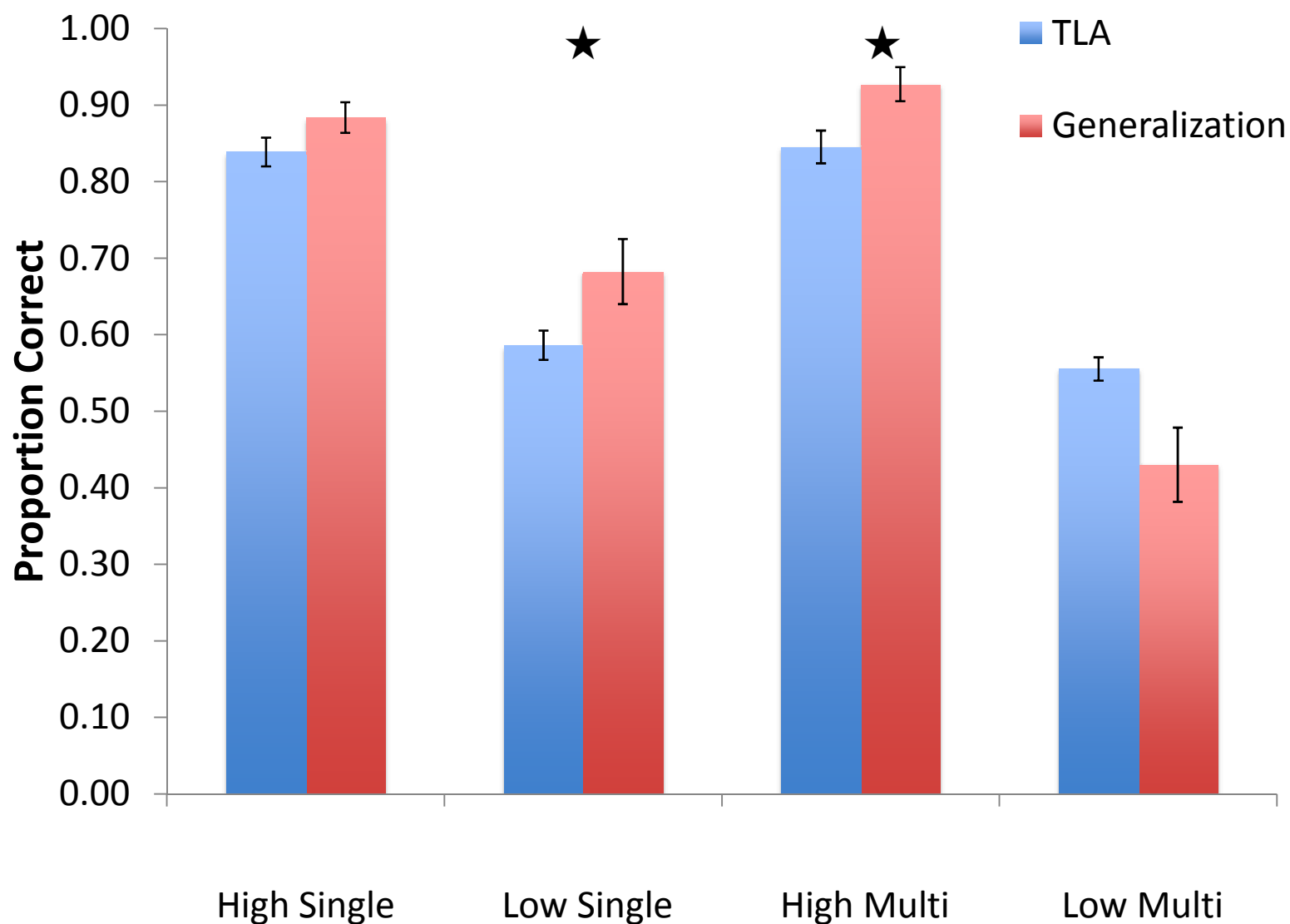
Perrachione et al. – Pre-Training



Perrachione et al. – Multi-Talker Training



Perrachione et al. – Single-Talker Training



The Current Study

Will older adults show success learning non-native speech sounds if training paradigms are matched to their pre-training perceptual abilities?

Participants

- 42 older adults participated
 - 26 females
- Average age 64.69 years, SD 6.81 years
- All participants were screened for for cognitive and hearing function
 - MMSE > 24
 - Hearing Thresholds < 40 dB at 1, 1.5, 2, 3, 4, 6, and 8 kHz

Participants

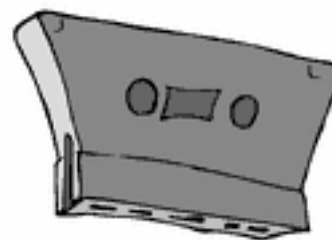
Group	N (N Females)	Mean Age	Mean PCPT
High Single	9 (7)	63.11	0.67
Low Single	12 (8)	64.33	0.52
High Multi	9 (4)	64.22	0.67
Low Multi	12 (7)	66.58	0.50

Training and Testing

- Identical procedures to Perrachione et al.
- Participants completed the PCPT before training
- Randomly assigned to multi talker or single talker training
- Trained for 8 days
- Completed the TLA post-training

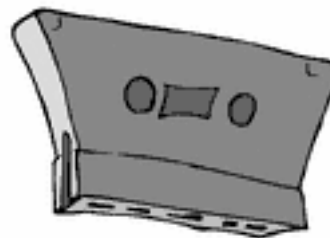
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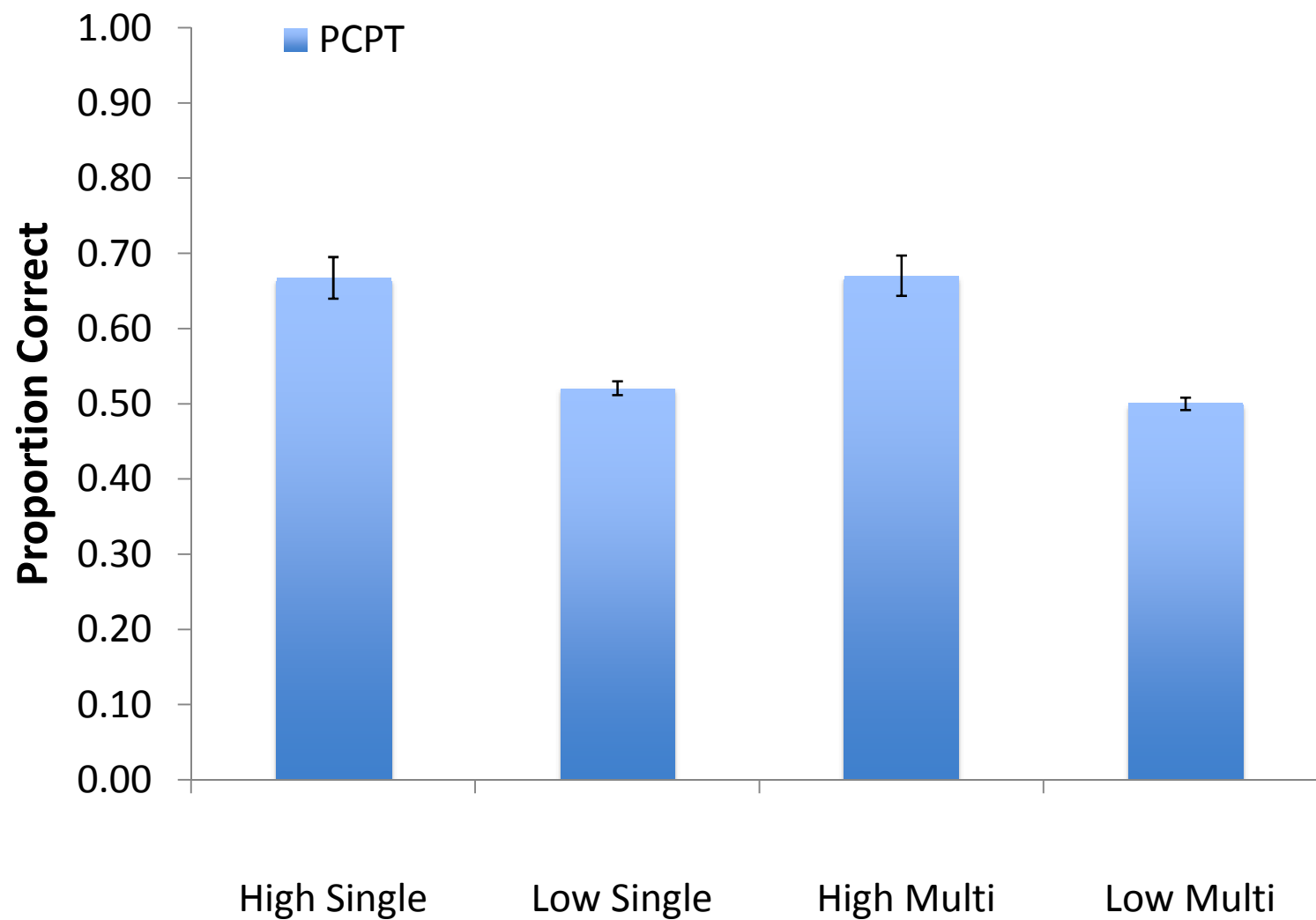


Training – Single Talker

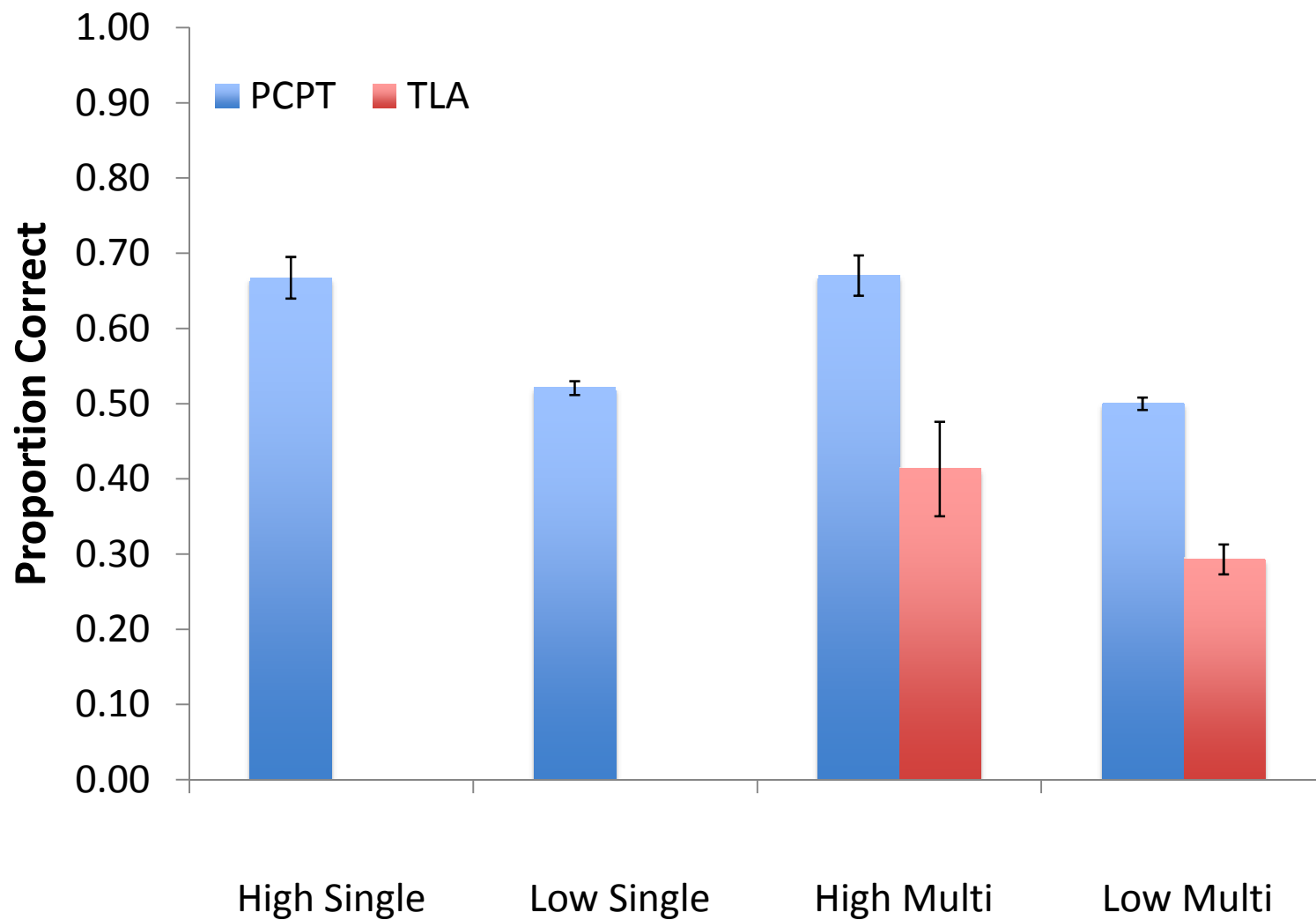
- Hear three items that differ minimally by tone
 - One talker throughout
- After presentation, 3-alternative forced-choice of the trained items
 - Feedback on each trial



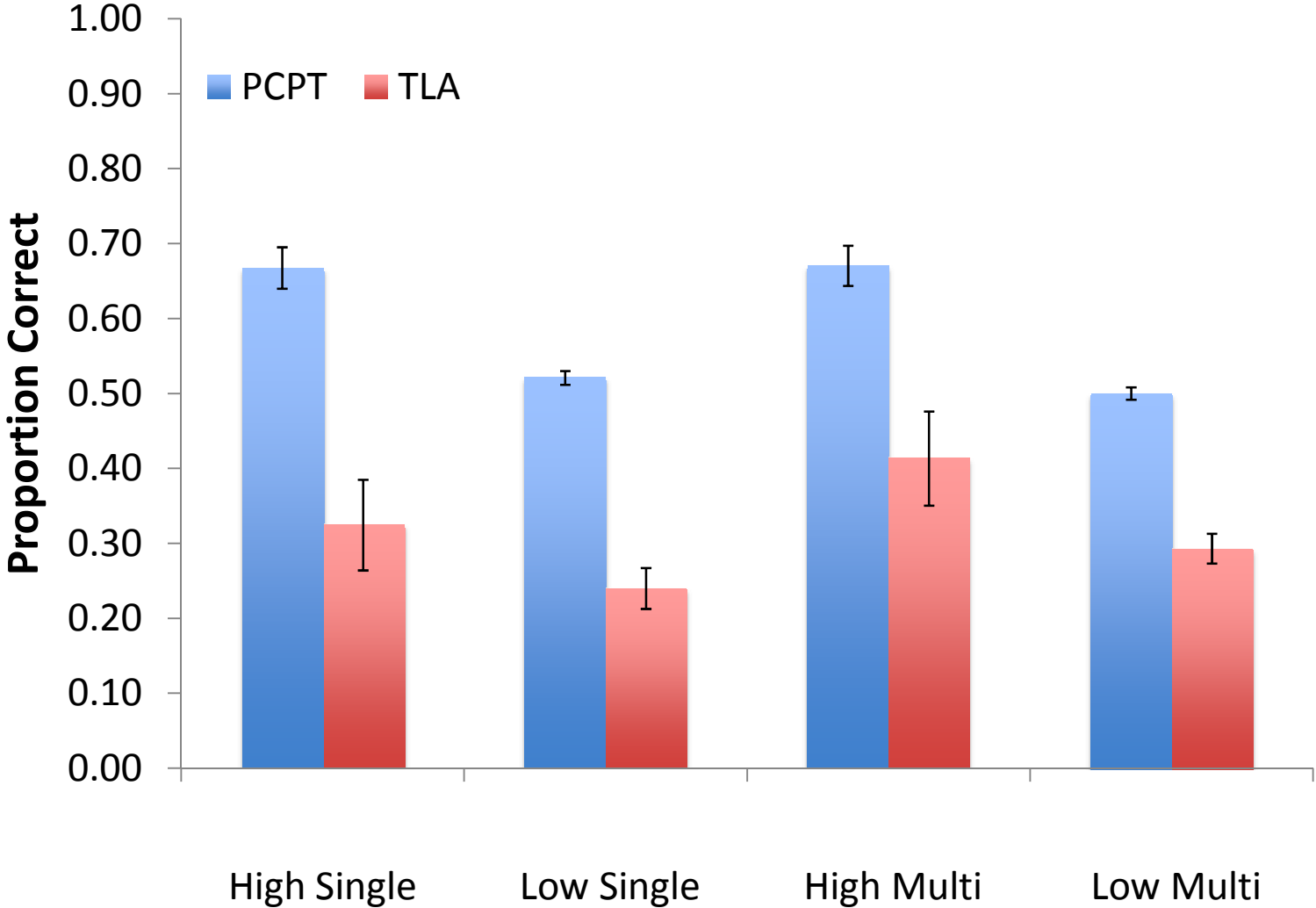
Pre-Training



Multi-Talker Training



Single-Talker Training



Conclusions

- Younger adults show an interaction between pre-training ability and training type
- Older adults show greater learning in the multi talker condition, regardless of ability
- Older adults have weaker tone perceptual abilities and smaller training gains overall
- Future studies will determine trainings to increase older adults' gains