Examining individual predictors of transfer of learning in non-native consonant cluster learning

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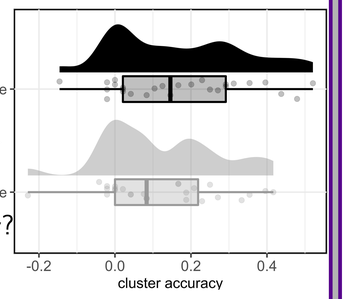
Background

- Growing interest in examining factors that can account for individual variability in speech/learning tasks.
- High variability in the magnitude of nonnative cluster learning across individuals was observed (Cheng and Buchwald, 2021)



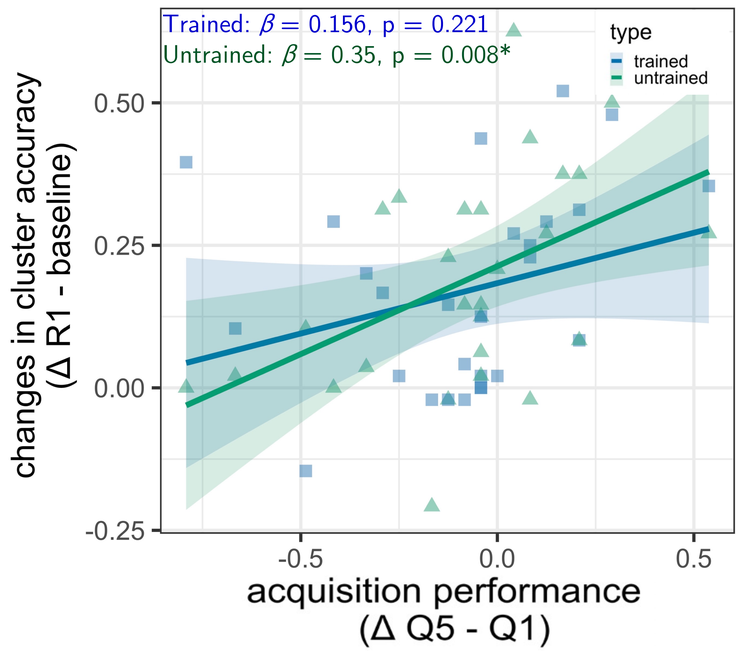
- Do individual-level factors predict this variability?
  - Performance during acquisition
  - Working memory ability (which may predict perceptual learning variability, McHaney et al. 2021)

Research questions

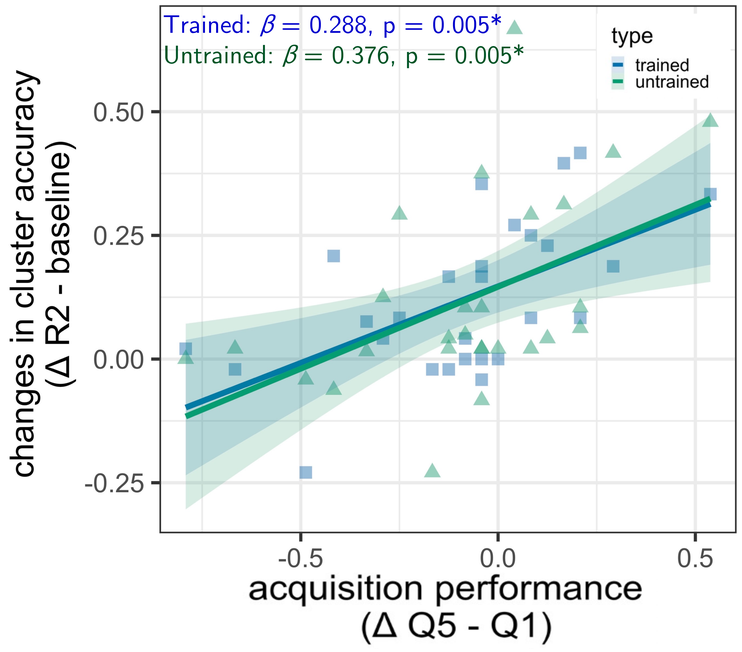
1. Can acquisition performance predict retention performance for both trained and untrained clusters?

2. Can an individual's working memory abilities predicted nonnative cluster (production) learning?

Q1: Acquisition performance predicted learning (in some contexts)



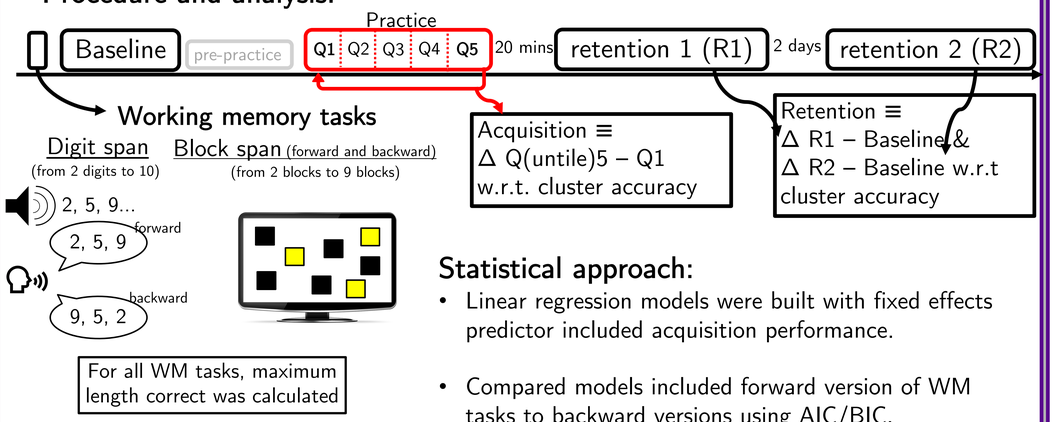
- Acquisition performance predicted short-term retention for only untrained clusters



- Acquisition performance predicted long-term retention for both trained and untrained clusters

Speech motor learning paradigm

- **Participants**: 28 American English speakers (Cheng and Buchwald, 2021)
- **Practice session:**
  - nonnative stop-stop onset clusters (e.g., GDEEMOO)
  - random and variable practice (3 clusters, 4 words/cluster, 10x each)
  - no feedback provided
- **Procedure and analysis:**

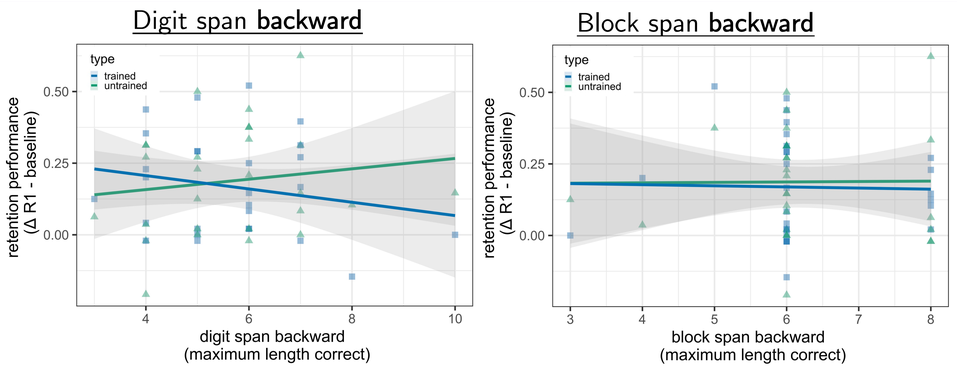


For all WM tasks, maximum length correct was calculated

Statistical approach:

- Linear regression models were built with fixed effects predictor included acquisition performance.
- Compared models included forward version of WM tasks to backward versions using AIC/BIC.

Q2: WM ability did not predict learning



Might attribute to:
1) Lack of variability on WM task performance.
2) WM measured by these tasks being irrelevant to nonnative cluster learning.

Take home points

- Acquisition performance and WM ability did not consistently account for retention performance in the context of nonnative cluster learning
- Sources of indiv. differences in speech motor learning remain poorly understood.

Next steps (dissertation work):
Examining factors that might be more closely related to nonnative cluster learning

- Perception ability of nonnative clusters?
- General speech motor coordination ability?