Phonological Abilities as Predictors of Foreign Language Learning Success

Katy Borodkin

Miriam Faust

Individual Differences in FL Attainment

- Every typically developing individual manages to obtain high mastery of his or her native language.

- In contrast, FL proficiency varies considerably among different individuals.

- This work attempted to explore possible underlying sources and manifestations of this variability.

Native Language Skills and FL Learning

- Individual differences in FL proficiency might be explained by differences in native language skills, especially phonological skills (e.g. Ganschow et al, 1998).

- When native language phonological skills are severely impaired, such as in dyslexia, FL learning becomes a very difficult task (Sparks, 1992).

Native Language Skills and FL Learning

- It was hypothesized that dyslexia is not an "all or none" condition (Velluntino, 2004).

- According to this hypothesis, phonological and reading skills reside on a continuum, where dyslexia occurs on the lower end.

Native Language Skills and FL Learning

- This hypothesis implies that on this continuum, poor FL learners without dyslexia might be located somewhere between good FL learners and persons with dyslexia.

- Accordingly, poor FL learners might experience similar difficulties as persons with dyslexia in phonological processing, albeit to a lesser extent.

Native Language Skills and FL Learning

- Persons with dyslexia have:
  - weak phonological awareness
  - reduced phonological loop
  - naming difficulties
- Research hypothesis:
  - If poor FL learners have similar weakness in phonological processing as persons with dyslexia, poor FL learners will perform less well on phonological awareness, phonological loop and naming tasks than good FL learners.

Method - Participants

- 42 undergraduate students studying in Bar Ilan university were enrolled.
  - Criteria for inclusion:
    - Age range: 20-30
    - Native speakers of Hebrew, not bilinguals
    - No known history of learning disabilities or dyslexia
    - Right handed
    - Learned English in school, had not spent more than 3 months in an English-speaking country

Method - Participants

- Participants were assigned to either poor or good FL learners group based on performance on an English proficiency test.
- 19 participants who scored above the median were assigned to the good FL learners group and 23 participants scoring below the median were assigned to the poor FL learners group.

Method - Materials

- To control for language use and age of FL acquisition:
  - Language History Questionnaire
- To control for general intelligence:
  - The Standard Progressive Matrices (Raven, 1956)
- To control for handedness:
  - Edinburgh Inventory (Oldfield, 1971)

Method - Materials

- To rule out dyslexia, the following tests were administered:
  - Rapid Automatized Naming of letters (RAN-L) and pictures (RAN-P)
  - Reading a list of unpointed Hebrew words and pointed Hebrew nonwords.

Method - Materials

- English proficiency was assessed by a test measuring text comprehension and grammar knowledge.
    - Scores on this test were highly correlated with scores on the English proficiency section of the psychometric examination of the Israeli National Institute for Testing and Evaluation ($r(38)=.84$, $p<.001$).

Methods - Materials

- Tests of native language linguistic skills:
  - Phonological awareness (phoneme deletion, phoneme segmentation, word blending)
  - Phonological loop (nonword repetion)
  - Language Learning Aptitude (MLAT)
  - Naming ability (Tip-of-the-Tongue paradigm)

Results

- As expected, no differences in performance between poor and good FL learners were found on the following tests:
    - The Standard Progressive Matrices
    - Edinburgh Inventory
    - Reading words and nonwords
    - RAN-P and RAN-L
- Good FL learners had slightly higher scores on FL everyday use than poor FL learners.

Results

- To study differences in native language skills among good and poor FL learners, a multivariate analysis of variance with FL use as a covariate (MANCOVA) on measures of phonological loop, language learning aptitude, phonological awareness and TOT occurrence was carried out.

Results

	good FL		poor FL			
	M	*SD*	*M*	*SD*	*F*	*p*
phonological loop	8.1	1.1	6.6	1.4	12.6	<.01
phonological awareness	12.2	6.4	13.9	5.5	<1	>.05
MLAT	67.2	8.9	59.3	10.5	6.8	<.05
TOT	0.07	0.03	0.15	0.08	16.4	<.001

Results

- To further study naming difficulties, responses in TOT experiment were divided into 5 categories:
  - TOT positive
  - GOT
  - Almost GOT
  - notGOT
  - postDK
  - TOT negative
- For TOT positive, the relative amount of self resolved and cue resolved trials was calculated.

Results
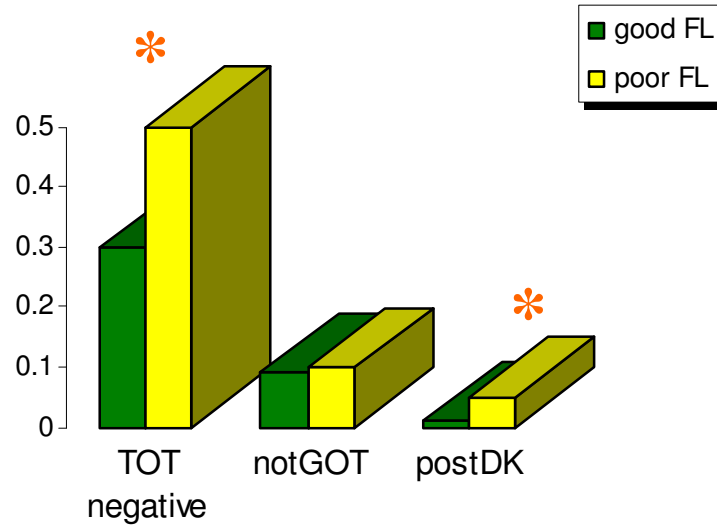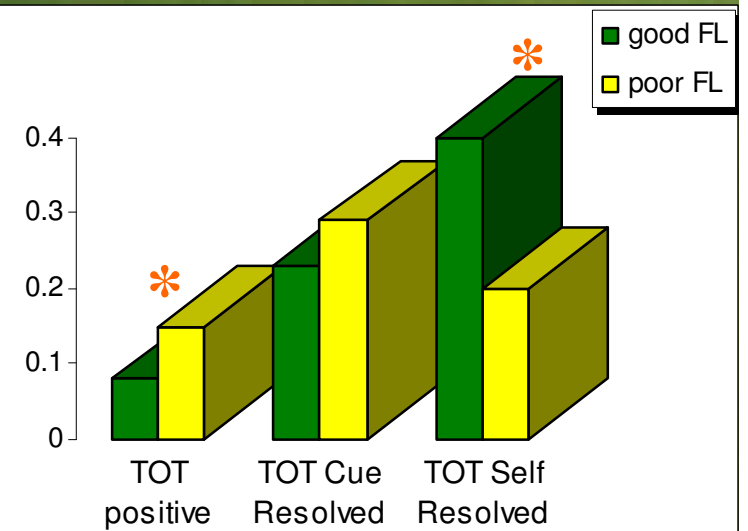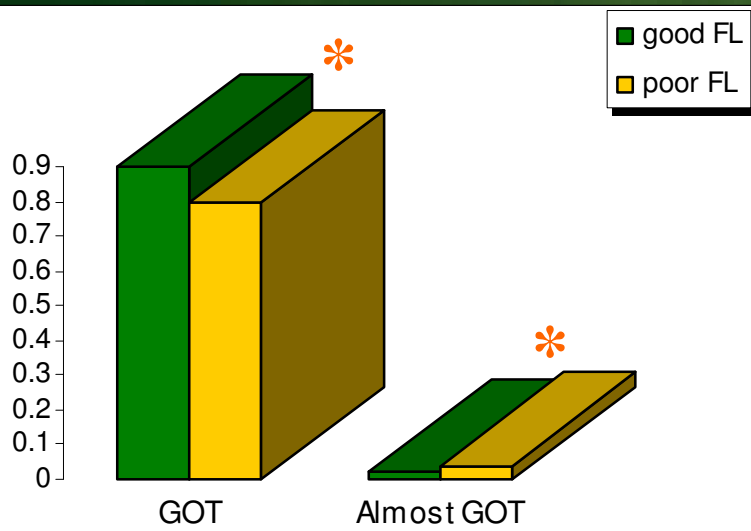
Conclusions

- These findings support the hypothesis that native language skills can predict FL performance.

- Specifically, individual differences in short-term phonological memory and in the ability to retrieve phonological codes of words can explain differences in FL performance.

- These findings also indicate that poor FL learners might experience difficulties in native language phonological processing that resemble to some extent the difficulties experienced by individuals with dyslexia.