

The relationship between second-language lexical encoding accuracy and individual differences in perception, cognitive abilities, and vocabulary size

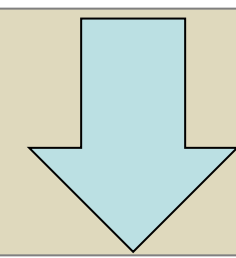
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INTRODUCTION:

L2 lexical representations can be fuzzy...

Confusable phonemic categories



Ambiguous lexical representations & Less effective mismatch from competitors
(e.g., Darcy et al., 2013; Hayes-Harb & Masuda, 2008; Weber & Cutler, 2004)

...but even accurate discrimination does not guarantee accurate lexical representations

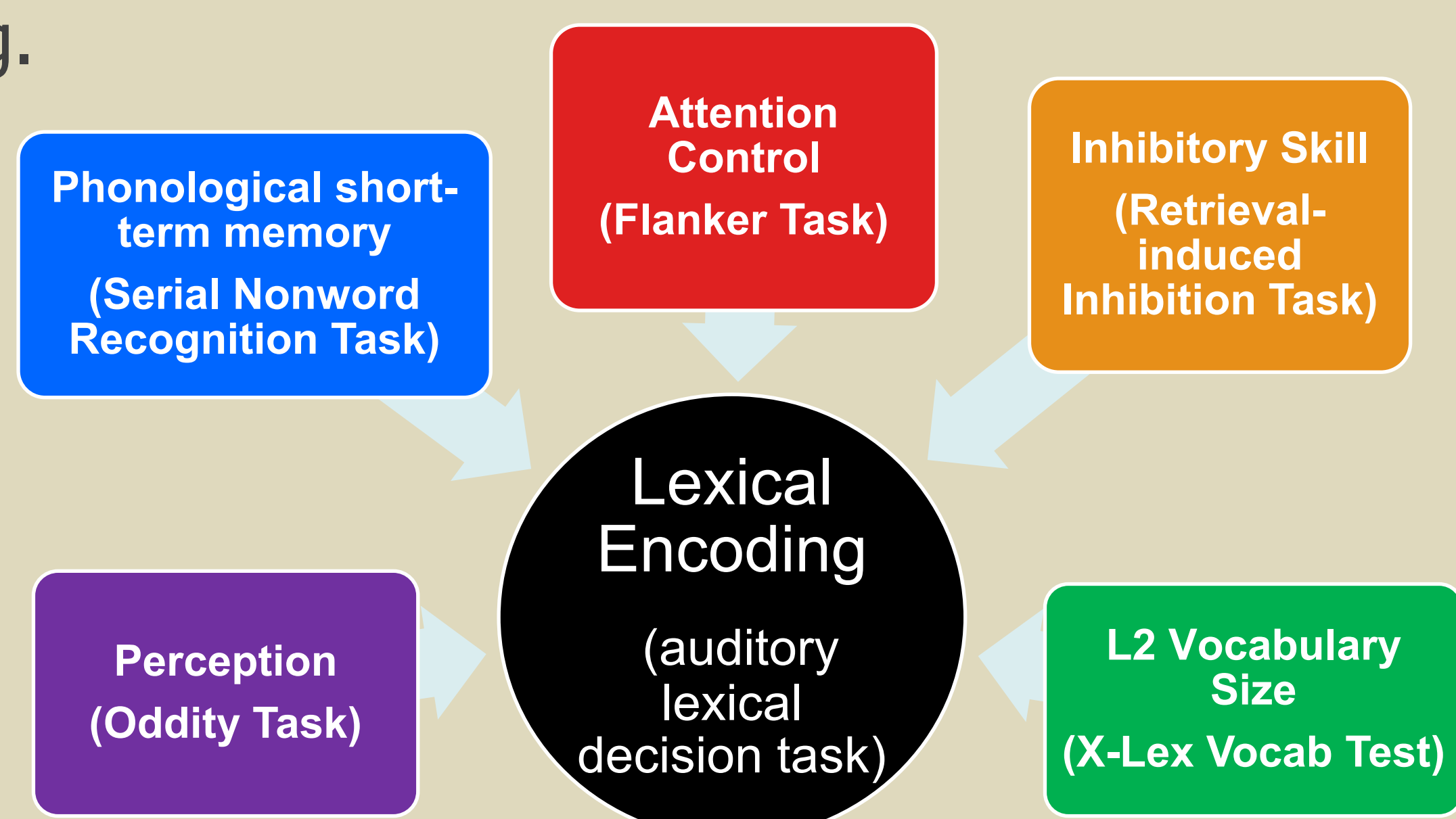
Within native range for perceptual but not lexical tasks
(Díaz et al., 2012; Sebastián-Gallés & Baus, 2005)

Primed by similar words that were not differentiated by new L2 contrasts
(Cook et al., 2016)

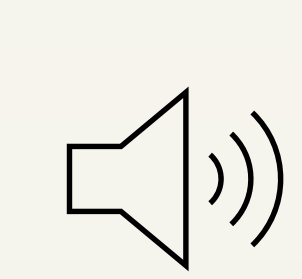
So what factors in addition to perception may affect L2 lexical encoding accuracy?

METHOD:

English-speaking learners of Spanish (N=35) and native Spanish speakers (N=8) were tested on their lexical encoding of the Spanish tap-trill, tap-/d/, trill-/d/, and /f-p/ contrasts and on individual differences measures shown to be related to L2 phonological processing.



LEXICAL DECISION:



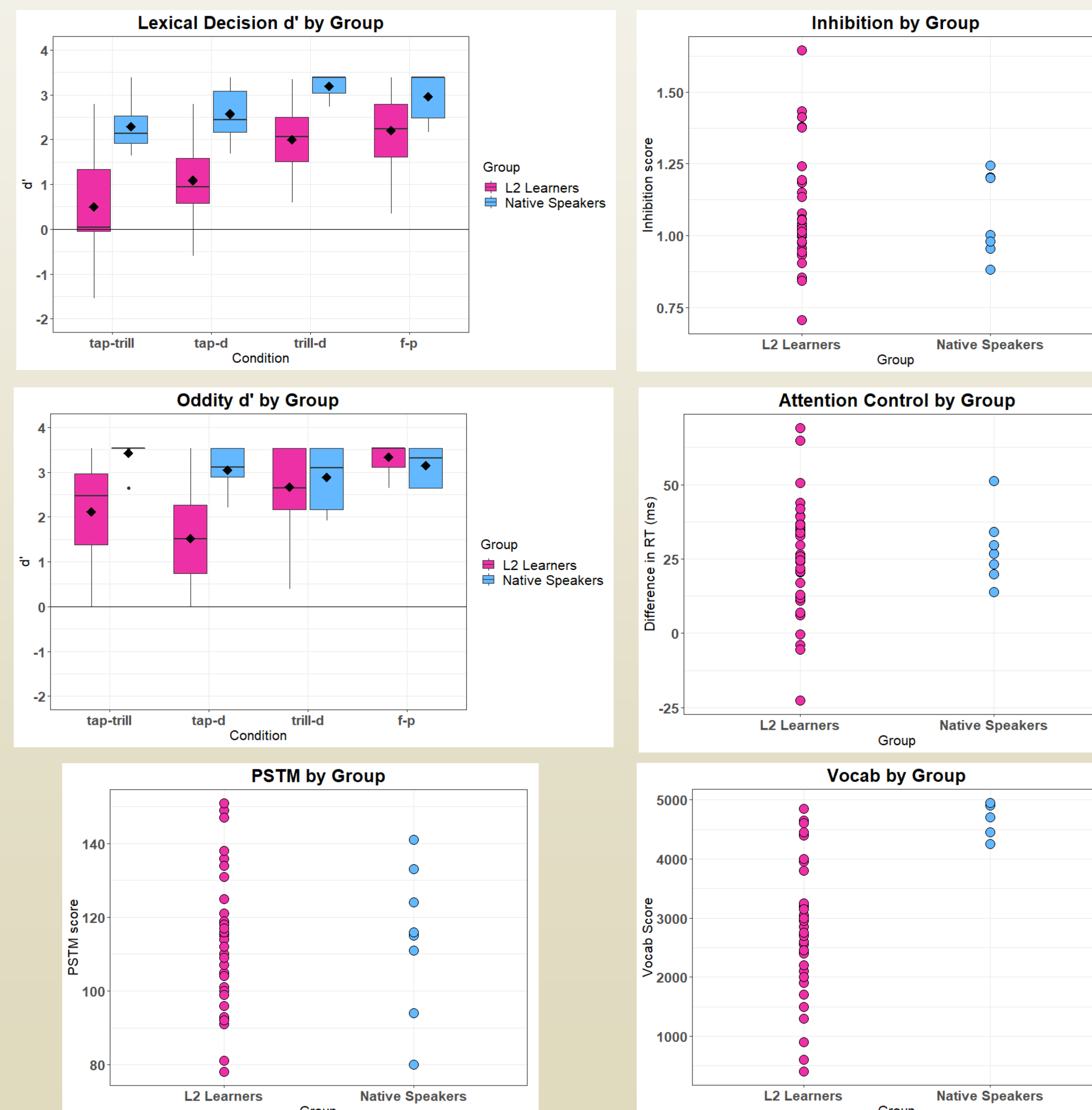
quierro
[k̞i̞ero]

Word: yes or no?
→ No (real word is *quiero*
[k̞i̞ero] 'I want')

Only words rated as familiar were included in the analysis for each L2 learner

RESULTS:

Lexical decision results and individual differences measures showed variation



Does the variation in individual differences measures correspond to variation in L2 lexical encoding accuracy?

Higher accuracy in lexical decision correlated with:

- higher vocab score for all conditions ($r(35) = .45-.67$, all $p < .01$)
- higher PSTM for tap-trill only ($r(35) = .43$, $p = .009$)
- higher oddity tap-/d/ score for tap-trill, tap-/d/, trill-/d/ ($r(35) = .49-.56$, all $p < .01$)

Does the variation in individual differences measures explain the variation in L2 lexical encoding accuracy?

Higher accuracy in lexical decision for tap-trill predicted by:

- higher PSTM (B 95% CI [0.26, 0.94], ΔR^2 95% CI [.03, .45], $p = .002$)
- higher vocab score (B 95% CI [0.19, 1.12], ΔR^2 95% CI [.03, .43], $p = .003$)

Higher accuracy in lexical decision for tap-/d/ predicted by:

- higher vocab score (B 95% CI [0.16, 0.91], ΔR^2 95% CI [.01, .41], $p = .010$)

Higher accuracy in lexical decision for trill-/d/ predicted by:

- higher vocab score (B 95% CI [0.31, 0.75], ΔR^2 95% CI [.16, .69], $p < .001$)

CONCLUSION

L2 vocabulary size most important factor in explaining L2 lexical encoding accuracy for all conditions

- Learning many similar words necessitates creating more detailed representations so that they can be differentiated

Differences in PSTM only matter for the tap-trill contrast

- Most important for storing details along a dimension not used in the L1
- Perception surprisingly not an explanatory variable for L2 lexical encoding accuracy

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