Language Change and Changing Languages

Influences of short- and long-term experience on online language processing

Language and Music Cognition Lab

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Music and (Second) Language

Success in acquiring a second language (L2) is notoriously variable for adult learners. Might musical ability predict successful L2 learning due to links between musical and linguistic processing? We took a meta-analytic approach to answer the following question:

Research Question:
Is musical ability or musical training related to L2 learning?

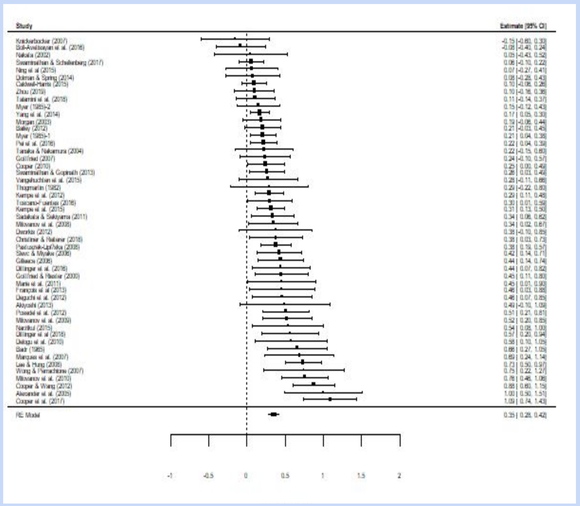
Study Selection Process

Six database searches → 230 articles found → 51 met inclusion criteria

Inclusion Criteria: Studies must…

- Quantify musical ability/training & L2 relationship
- Must not involve potential confounds such as…
  - neurological problems
  - learning impairments
  - language impairments
- Measure musical experience/ability/aptitude clearly

Results - Forest Plot of Effect Sizes



We found a significant positive relationship between musical ability/training and L2 learning

Average effect: r = .35

Studies are listed on the left. Small dots are each study's standardized effect size and are surrounded by its 95% confidence interval

Rapid Language Updating

Listeners and speakers adjust how they understand and produce language even from short experiences.

Research Questions:
Do listeners change their expectations about what kinds of language structures they will hear based on the characteristics of the current input?

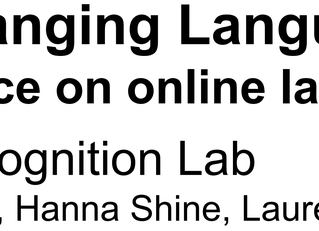
What specific changes in processing drive expectation change?

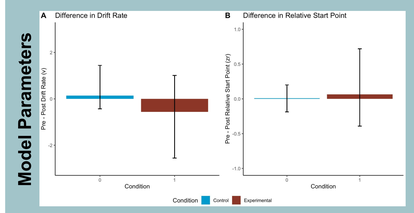
How do social and communicative contexts lead to rapid changes in language production choices?

Example Study 1: How Learning Changes Parsing

Experimental group participants changed their interpretation of ambiguous sentences after being exposed to the unexpected resolution to the ambiguity.

Example sentence: "*Kate hit the girl with the ball.*"
Instrument interpretation: Kate used the ball to hit
Modifier interpretation: Kate hit the girl who has a ball





Drift Diffusion Modeling decomposes overt choice behavior to show the underlying cognitive processes that drove that choice.

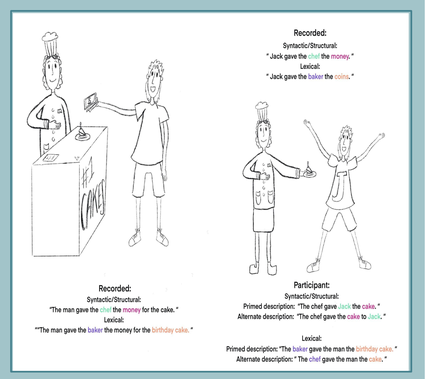
The choice task was designed to present different kinds of information relevant to parsing decisions in a way that the information should be captured by different model parameters.

Participants changed how they used information about **verb-syntactic structure associations** (captured by drift rate) but not syntactic structures in general or event semantics (captured by start point).

Example Study 2: Why do we start talking like our conversational partners?

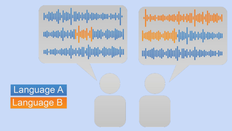
People tend to use the same words and sentence structures as their conversational partners – lexical & syntactic ***alignment***. Does this alignment reflect *social* pressures or *communicative* pressures?

Test via alignment with foreign accented speakers in a cooperative storytelling task, manipulating accent prestige (social pressure) & accent intelligibility (communicative pressure).



Bilingual Code-switching

Bilingual code-switching: Code-switching refers to bilinguals' tendency to switch between their languages when communicating with other bilinguals. Here, we look at switches that happen within a sentence.

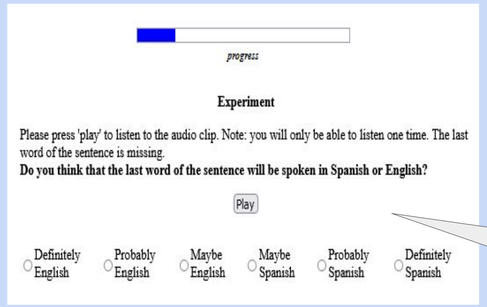


Mañana en la clase hay un *test about Unit 1*.

Research Questions:

When are code-switches more and less costly to process?
(How) do code-switches benefit listeners?
Do code-switches modulate bilinguals' attention and memory?

Example Study: Can bilinguals predict when a speaker will switch between languages?



Code-switches are often considered "costly" in lab studies, but in natural speech there are often cues that a switch is coming that may make it easier to understand switches.

Mañana en clase hay un…

Based on preliminary data, Spanish-English bilinguals tend to predict that a Spanish sentence will continue in Spanish and don't accurately predict when a switch to English will occur.

However, our audio files provide little context, so it is possible that with more context, bilinguals can predict code-switches.

Preliminary data