

Pseudoword/sign repetition performance across bimodal bilinguals from the US and Brazil: a comparative analysis

L. Viola Kozak
Deborah Chen Pichler
Gallaudet University

Ronice M. de Quadros
Carina Rebello Cruz
Aline Lemos Pizzio
Universidade Federal de Santa
Catarina (UFSC)

Diane Lillo-Martin
University of Connecticut

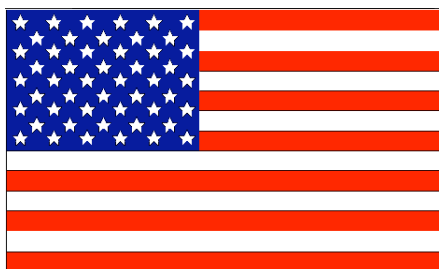


Binational Study of Bimodal Bilingual Language Acquisition



We examine the development of a sign language and a spoken language in two language pairs:

- American Sign Language (ASL) and English (E)
- Brazilian Sign Language (Libras) and Brazilian Portuguese (BP)



Bimodal bilingual participants



- Children with access to two languages in two separate modalities (signed and spoken)
- Three kinds of bimodal bilinguals are part of this study
 - Kodalas (hearing children of Deaf parents)
 - CIs (implanted Deaf children of Deaf parents)
 - CIs from hearing families (Brazil only)



Test that will be addressed

Pseudosigns in Libras/ASL

- Design inspired by Mann et al (2010) and parameters from Mathur (forthcoming)
- Pseudosign stimuli comprised of 33 /39 for Libras/ASL tokens consisting of 11 patterns of internal sign structure
- All stimuli followed permissible phonotactic patterns of Libras and ASL

Pseudowords

- Brazilian Portuguese (following Santos & Bueno 2003)
 - Stimuli tokens with low, medial, and high similarity to actual words
- English (following Dillon et al. 2004)
 - Stimuli tokens range from 2 to 4 syllables

Our goal



To evaluate the development of phonological memory in spoken and signed language for hearing bimodal bilingual children and deaf children who sign and use a cochlear implant.

Previous research



- Previous research in CI children mostly focused on monolingual speakers (as Geers et al. 2004, 2011)
- Previous findings: CI children perform below their hearing, monolingual counterparts (consequences of *delayed L1 exposure/lack of access to sound*)
 - Early exposure to an L1 in bilinguals, regardless of language family or modality, correlates to superior performance on tests of a later-acquired language (Mayberry 2000)

General hypothesis



- CI children with exposure from birth to a signed language will develop spoken language more readily than their CI counterparts with limited access to sign.



Predictions

- Kodas will perform well on both signed and spoken tests
- CIs from Deaf parents will perform with greater accuracy on pseudosign tests; and exposure from birth to signed language will bolster spoken language performance
- CI from hearing parents with delayed exposure to language will perform with less accuracy than the other two groups on pseudowords and pseudosigns

Pseudoword Test Participants

(4-8 years old)



	BRAZIL	USA
KODAS	23	28
CI	6*	4

*1 from DP and 5 from HP (limited access to SL)
6 Brazilian coda adults (control group)

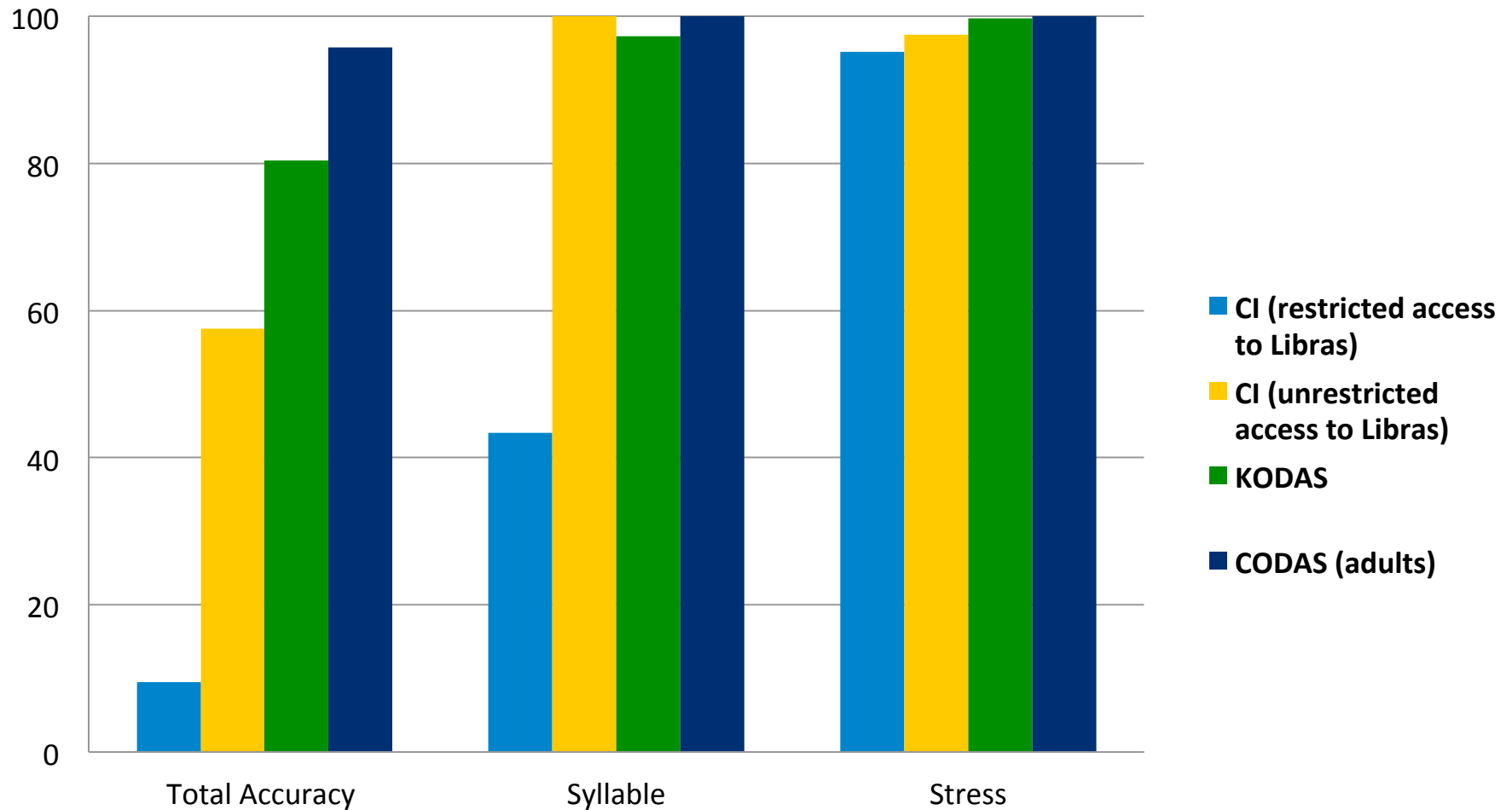


Organization of data

- Phonetic transcription with IPA
- Participants analyzed for overall accuracy, correct stress, correct # of syllables
- CI individual analysis
- Brazil: 40 target words: two, three, four and five syllable
- US: 15 target words: two, three, and four syllable

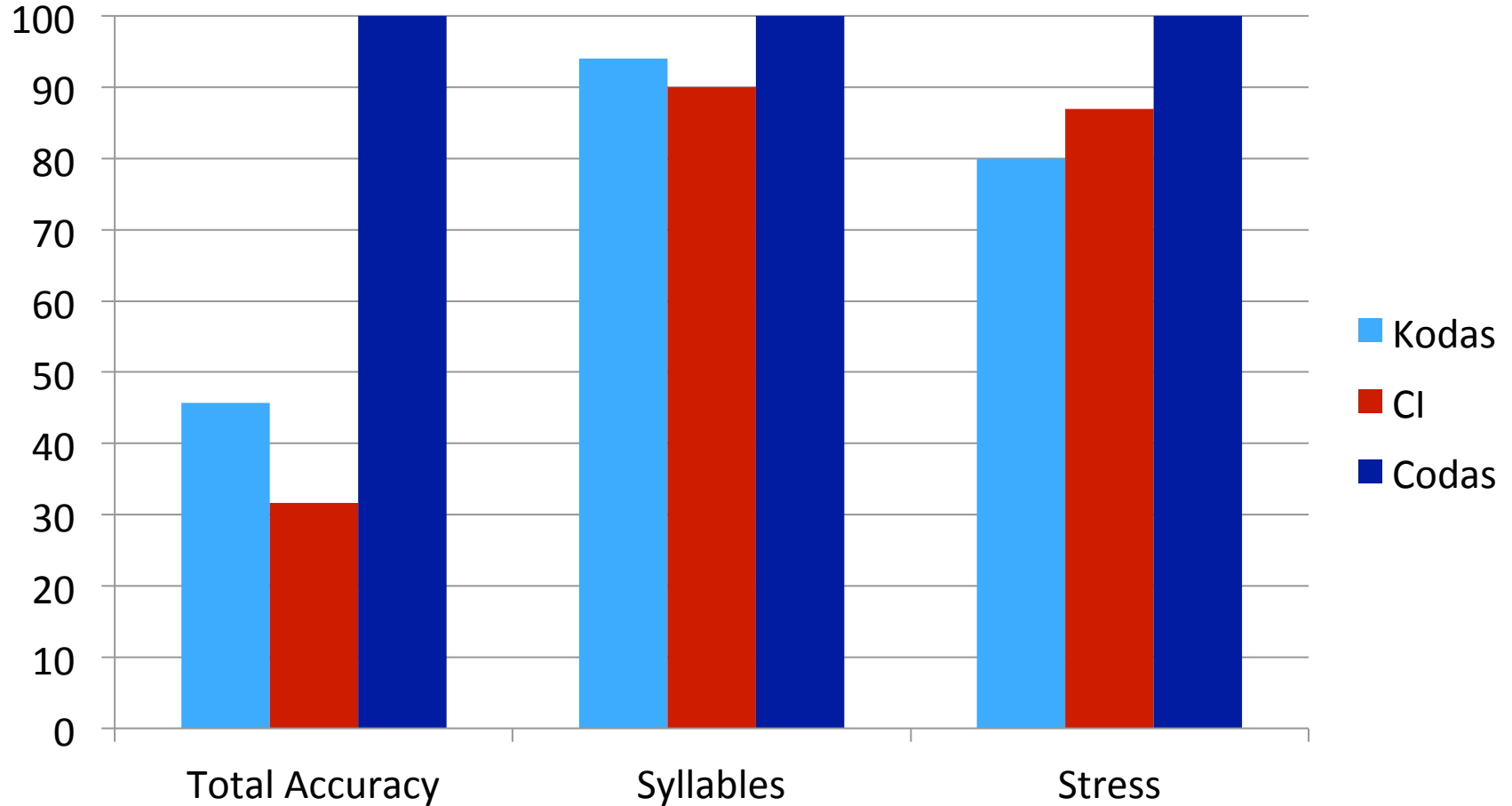
BP Pseudowords

Total accuracy of pseudowords, correct number of syllables and correct stress*

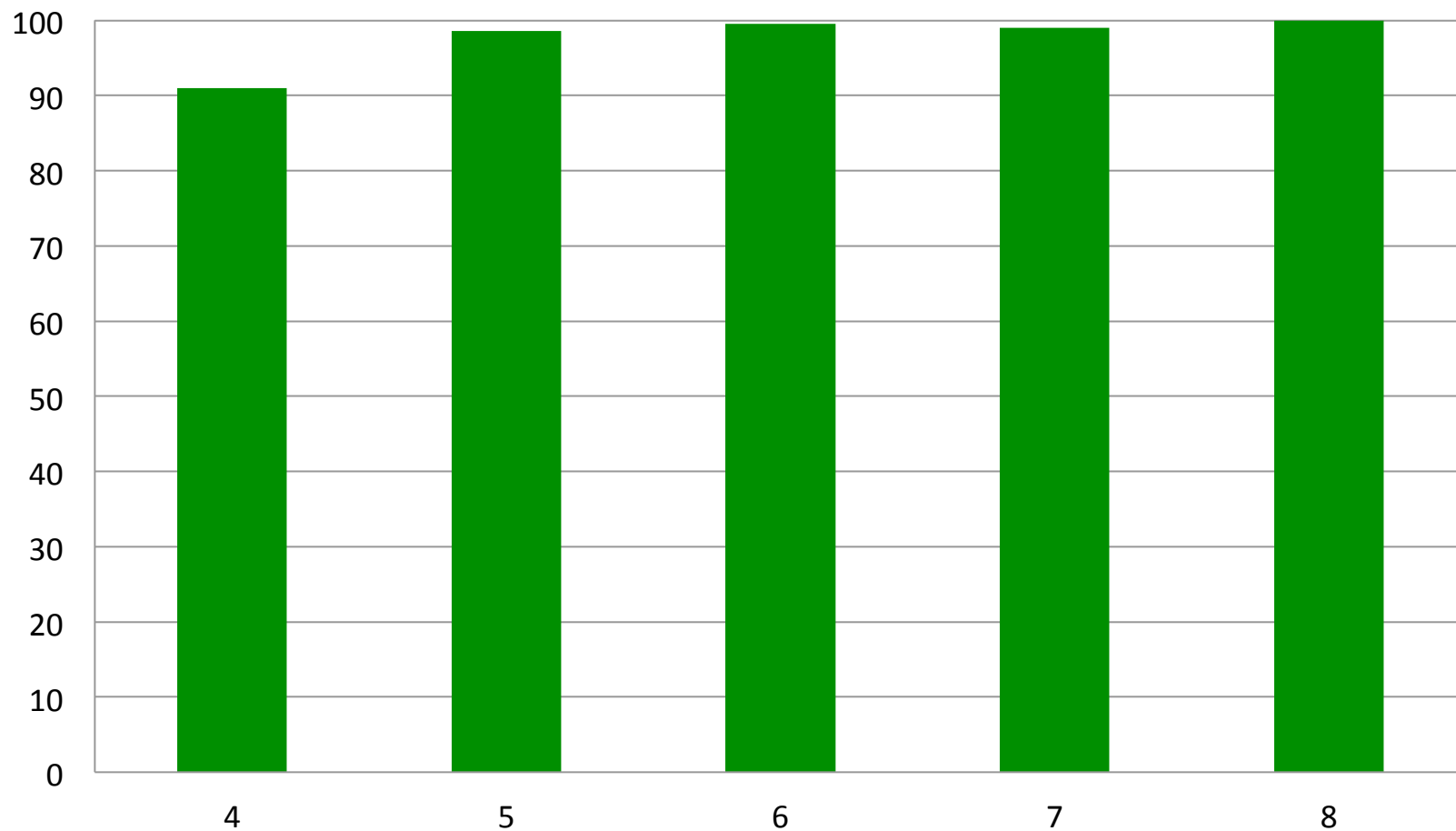


English Pseudowords

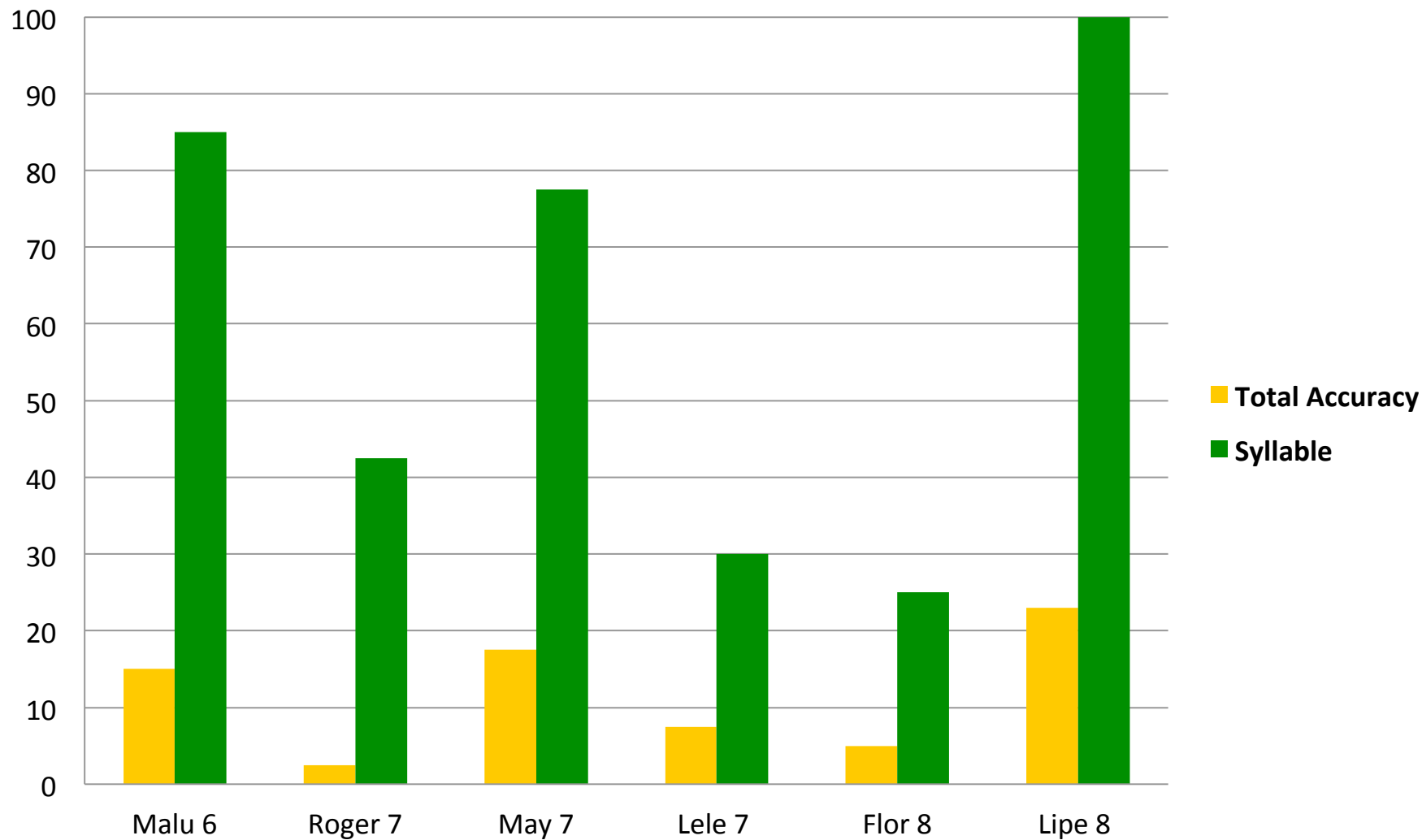
Total accuracy of pseudowords, correct number of syllables and correct stress



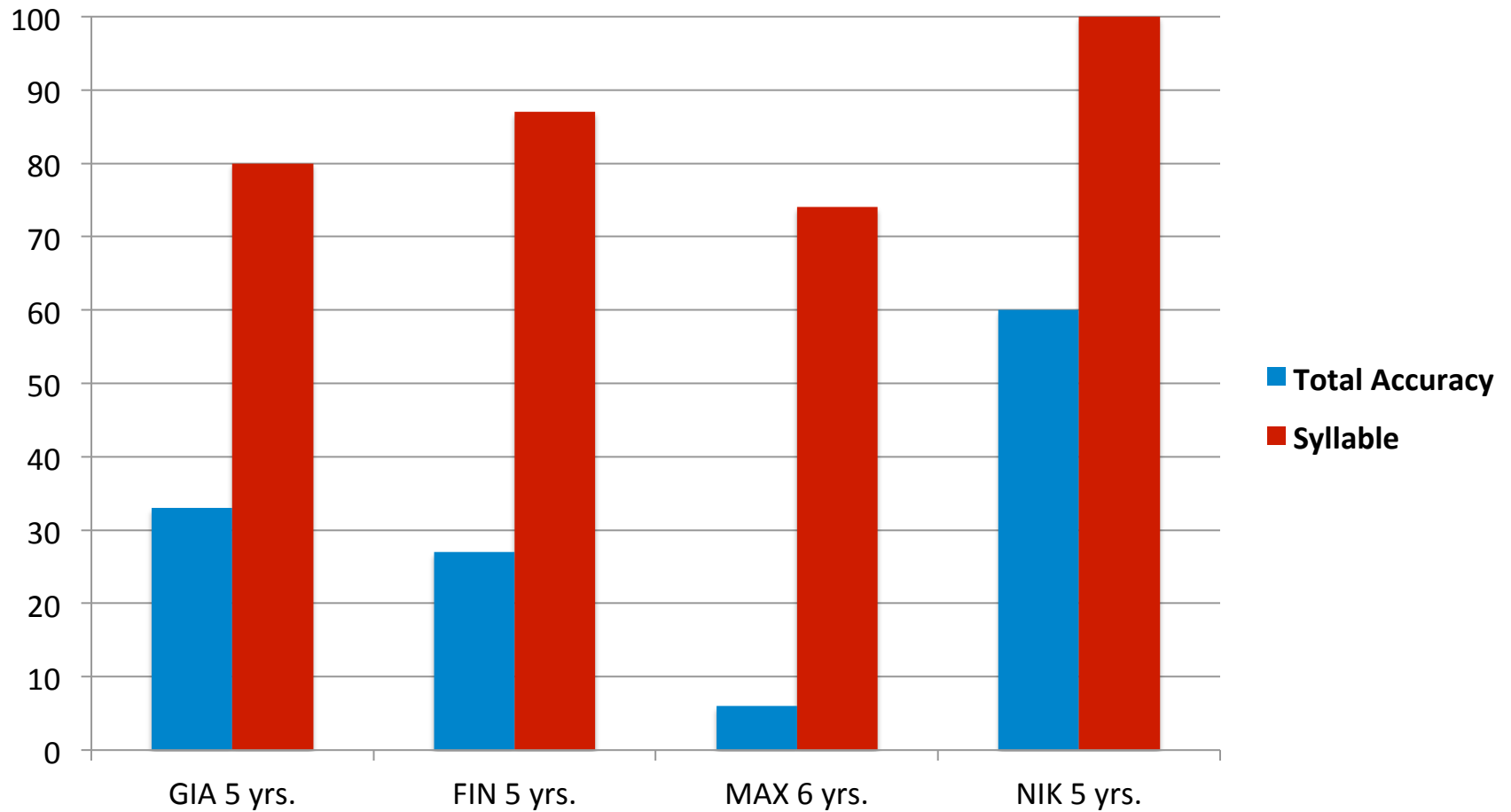
Brazilian Portuguese Pseudowords
Correct number of syllables produced by Kodas
Performance age



**Total accuracy and correct number of syllables produced by Brazilian
children users of CI**
Individual performance



Total accuracy and correct number of syllables
US CI users
Individual performance



Summary of the results

Pseudowords



- Some differences between children with CI and Kodas.
- Performance is similar between CI with Deaf parents and Kodas WRT syllable and stress performance.
- There is an advantage for the CI with Deaf parents WRT accuracy compared to CI with restricted access to sign language.

Pseudosigns Test Participants

(4-8 years old)



	BRAZIL	USA
KODAS	19	28
CI	6*	4

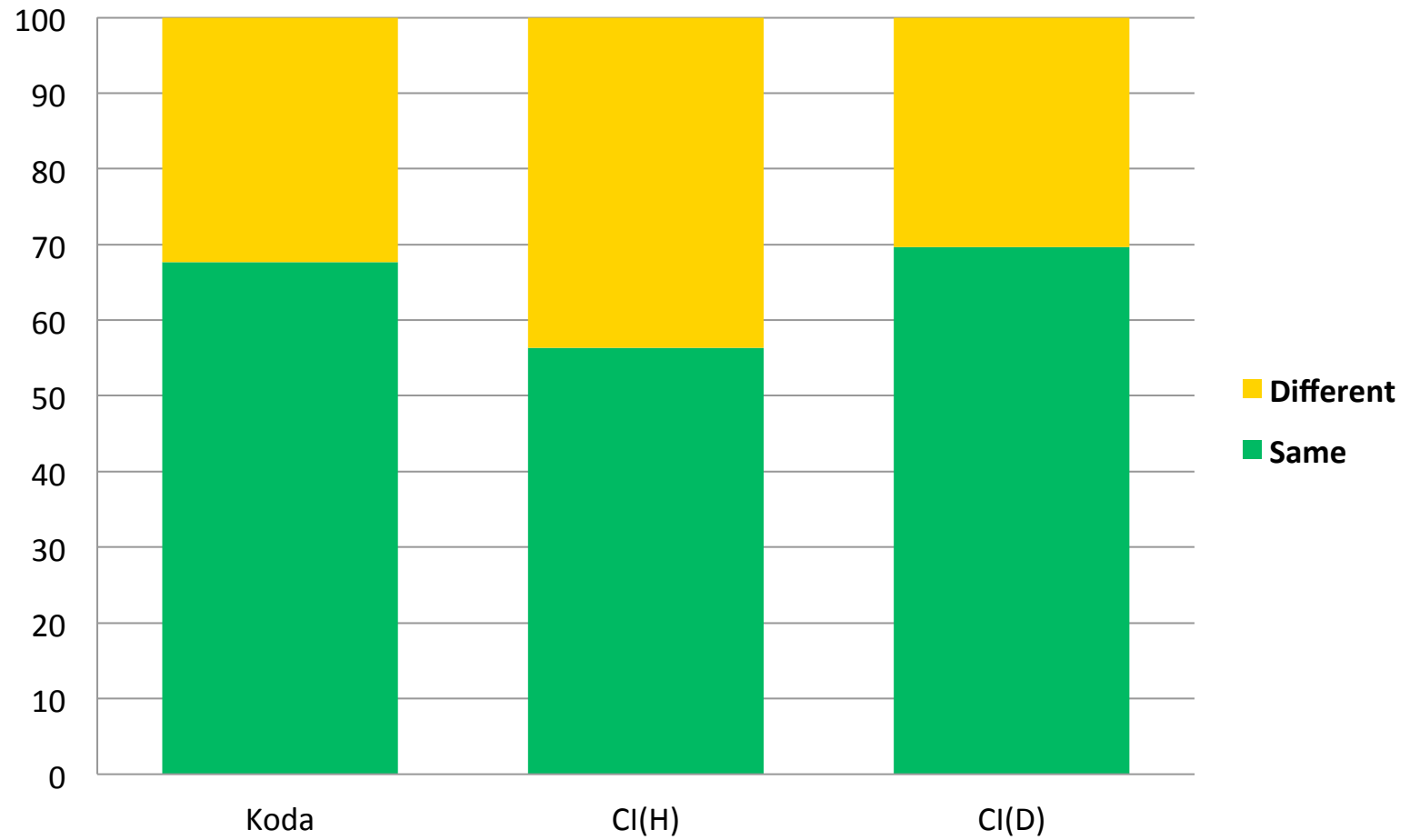
*1 from DP and 5 from HP (limited access to SL)
6 Brazilian coda adults (control group)

Internal structure of the pseudosigns

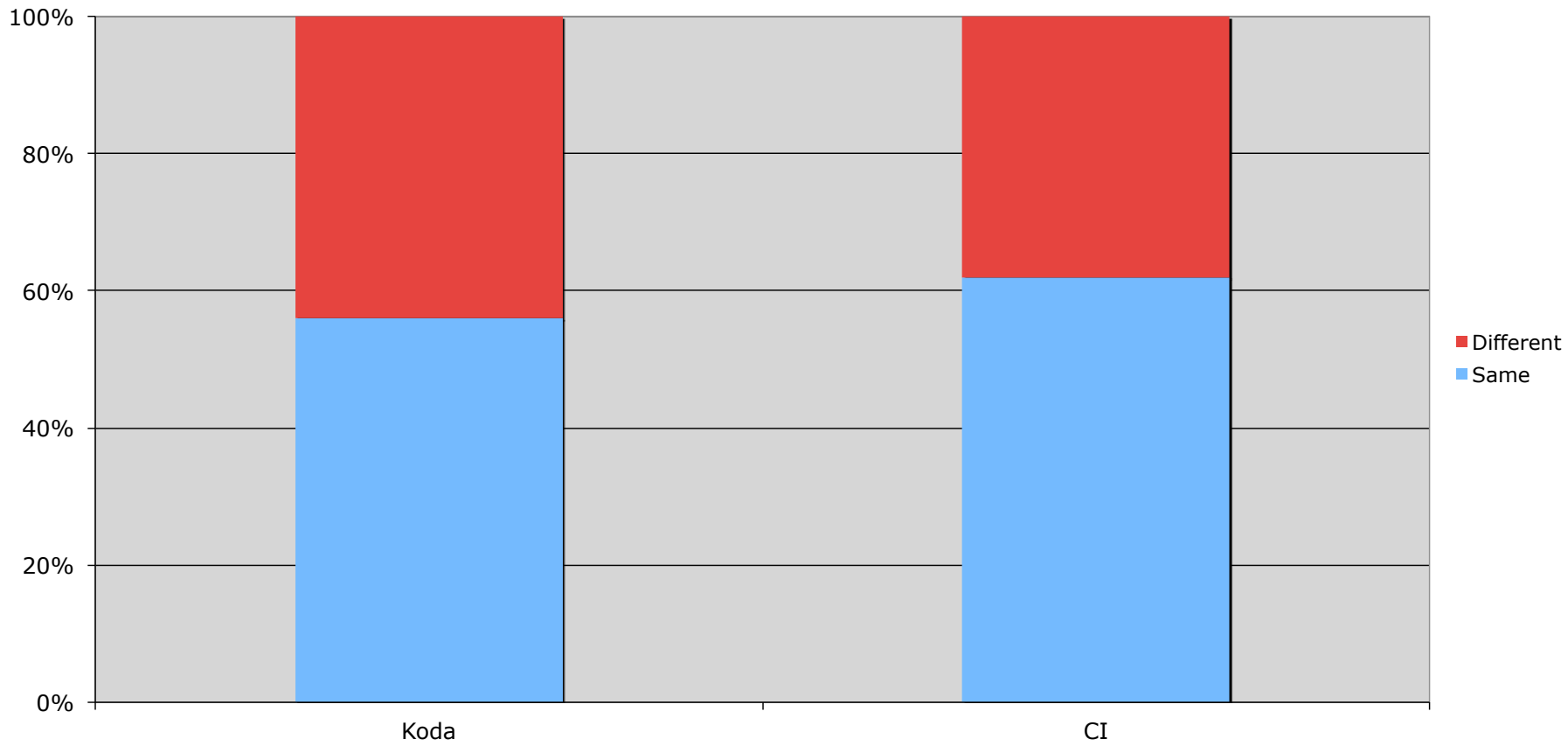


I	1H1HS no path movement 1H1HS with path movement
II	2H1HS symmetrical movement 2H1HS asymmetrical movement
III	1H2HS (handshape change), no path movement 1H2HS (handshape change), with path movement
IV	2H2HS (passive and active hands)
V	2H2HS (handshape change), symmetrical movement compound signs

Libras Pseudosigns – Overall Accuracy



ASL Pseudosigns - Overall accuracy

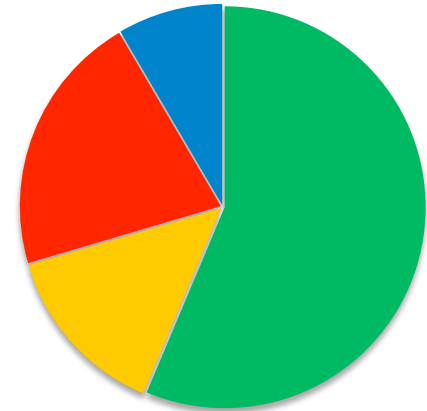


Comparisons of error type between Kodas and CI

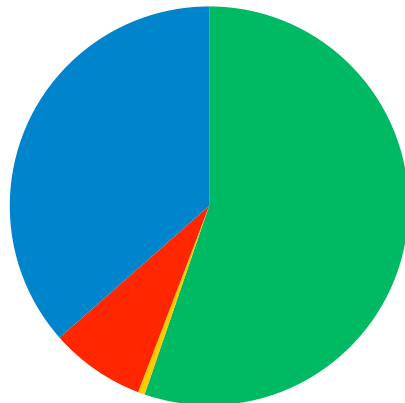
ASL Koda errors



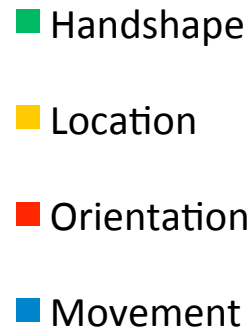
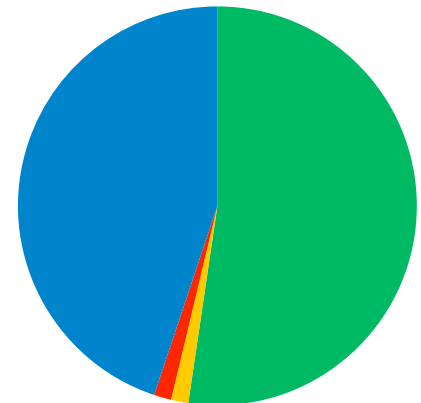
ASL CI errors



Libras Koda errors



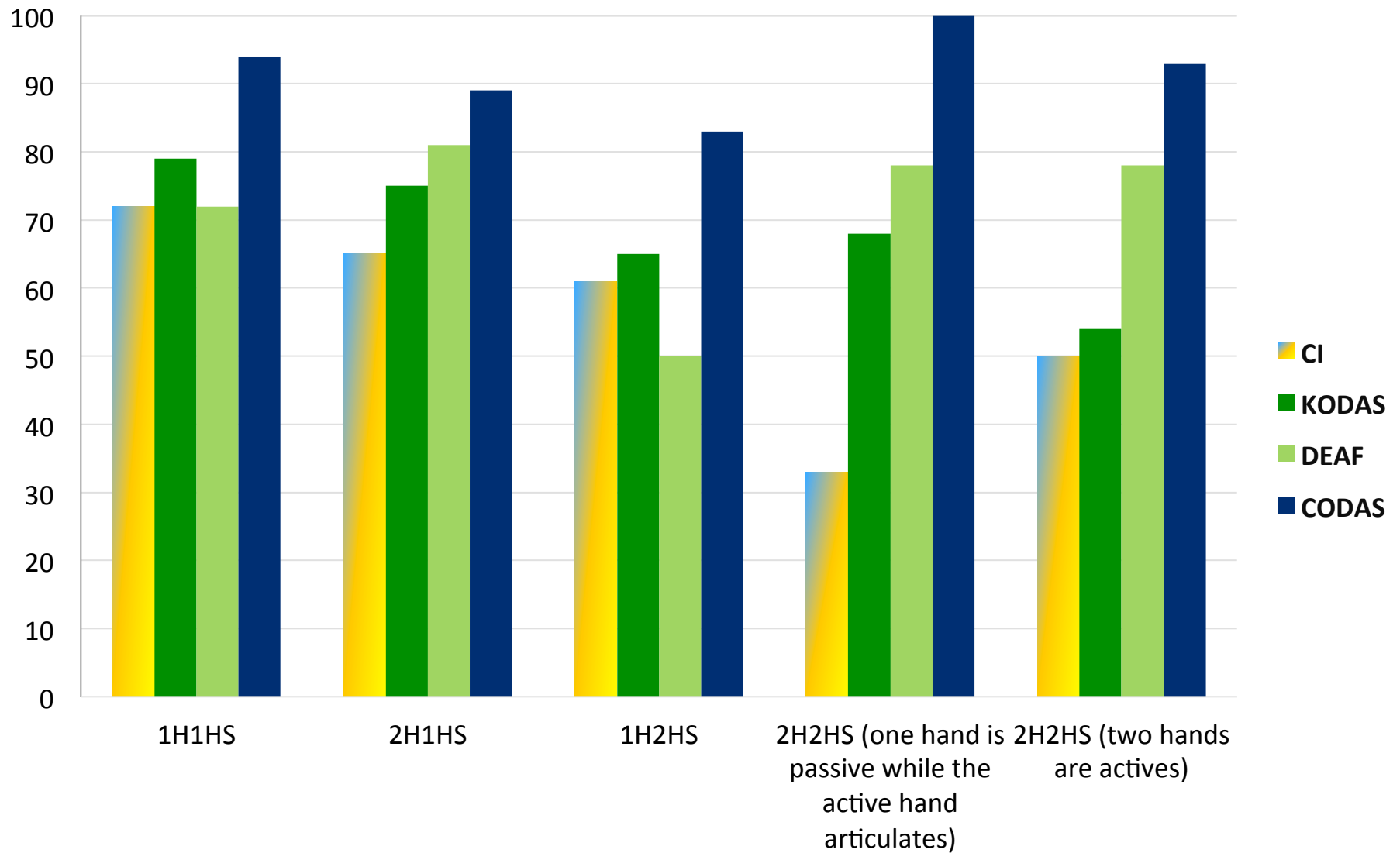
Libras CI errors



Libras Pseudosigns Test Performance

Quantitative Analysis

One-handed and two-handed signs



Summary of the results

Pseudosigns



- CI children from Deaf families performed more on-par with their koda counterparts WRT accuracy
- Almost all children had HS, M, L and/or OR modification.
- WRT to error types:
 - HS less accuracy for all groups
 - L less accuracy for ASL Kodas
 - M less accuracy for Libras CI
- Despite limited exposure to Libras, the CIs from hearing families had superior performance on pseudosign tests compared to the pseudoword tests

Checking Predictions

- ✓ Kodas will perform well on both signed and spoken tests
- ✓ CIs from Deaf parents will perform with greater accuracy on pseudosign tests; and exposure from birth to signed language will bolster spoken language performance
- ✓ CIs from hearing parents having delayed exposure to spoken language will perform with less accuracy than the other two groups BUT
- ✗ CIs with limited exposure to signed language will result in low pseudosign accuracy



Conclusions

- Children with CI still favor the visual channel for language, even with limited exposure to sign language.
- Sign language acquisition does not prejudice spoken language acquisition.
- Our findings are similar to that of Hasanzadeh (2012)

Bibibi Project Website
<http://bibibi.uconn.edu/index.html>

The Development of Bimodal Bilingualism

UConn | Gallaudet | Universidade Federal de Santa Catarina

USA

Brasil



About the Project

Hearing children of Deaf families (kodas) acquire both a sign language and a spoken language simultaneously. This project investigates the sequence and timecourse of the development of these two languages, and compares this process with what is known about the development of two spoken languages. The development of the bimodal bilingual's two languages is also compared with the monolingual development of a spoken language or a sign language.

This project also includes the investigation of Deaf children who are acquiring sign language and also are learning a spoken language with the aid of a cochlear implant. The process of acquiring two languages for these

For Prospective Participants

Longitudinal Studies
Language Fairs

For Researchers

Publications
People