PHONOLOGICAL ACQUISITION IN CHILD L2 LEARNERS: CLINICAL IMPLICATIONS

Tamara Sorenson Duncan

PhD Student ~ Department of Linguistics
tamara.sorensonduncan@ualberta.ca
www.ualberta.ca/~tgs
Overview

- Nonword Repetition Task
- L2 Phonological Development in childhood
- Grammatical Assessment

A note about abbreviations:
- NWR – nonword repetition
- L1 – first language
- L2 – second language
- ESL – English as a second language
Nonword Repetition (NWR) Tasks

- Nonsense words
- Phonological Short Term Memory (STM)
  - Phonological STM is related to language learning abilities
- Real words are stored in long term memory
CTOPP (Wagner et al, 1999)

1. dżip
2. żid
3. pełt
4. mełb
5. wudcirp
6. naigəŋ
7. bairlidoudʒ
8. vouzətuv
9. Iısəfyl
10. wulaenəwarp
11. tibudairält
12. vivəsumauzelf
13. bələugədʒəndəplou
14. gekizaiiseikäed
15. magibusənusafik
16. dukəsətəparitəzam
17. ūbaəəiλuəciuməf
18. bələugədʒəndəplou
What impacts NWR performance?

- The more a nonword is like a real word the better children will do at repeating it (e.g., Edwards et al., 2004; Munson et al., 2005)

- Phonological abilities impact NWR performance (e.g., Sahlen et al., 1999)
Vocabulary and NWR

- NWR ability predicts vocabulary until age 5 (e.g., Gathercole et al., 1992)

- After age 5, vocabulary predicts NWR ability (e.g., Gathercole et al., 1992)

- In the early stages of language development, performance on an NWR task relies more heavily on short-term memory than is the case for more advanced learners.
NWR as a clinical assessment

- Phonological STM is important in language learning
- NWR tasks assess phonological STM
  (e.g., Gathercole & Baddley, 1989)
- Useful for many first languages: Spanish, Dutch, Swedish, and English
  (e.g., Girbau & Schwartz, 2007 on Spanish; Rispens & Parriger, 2010 on Dutch; Sahlen, Reuterskiöld-Wagner, Nettlebladt, & Radeborg, 1999 on Swedish).
- NWR separate typical and atypical learners
  (e.g., Dollaghan & Campbell, 1998; Laing & Kamhi, 2003; Gallon, Harris, & van der Lily, 2007; Girbau & Schwartz, 2007; Thordardottir, 2008)
NWR and L2 Children

- Previous Research
  - No consensus
  - L2 children at L1 norms
  - L2 children below L1 norms

- Limitations
  - What language are the nonwords based on?
  - Small vocabulary
The Canadian Context
(Statistics Canada, 2006)

Mother Tongue
- French
- English

Non-Official Languages
- Chinese
- Spanish
- Arabic
- South Asian

NWR Example
# NWR Example – Cont’d

<table>
<thead>
<tr>
<th>Item #</th>
<th>Item</th>
<th>Target</th>
<th>Child's Production</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>jup</td>
<td>dʒup</td>
<td>dʒups</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>zid</td>
<td>zid</td>
<td>zid</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>pate</td>
<td>peɪt</td>
<td>peɪt</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>meb</td>
<td>mæb</td>
<td>nɛk</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>wudoip</td>
<td>wu.ðɪp</td>
<td>wu.bæɪt</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>nigong</td>
<td>nai.gan</td>
<td>nai.gan</td>
<td>0</td>
</tr>
</tbody>
</table>

**Raw Score:** 2  
**Standard Score:** 6
### NWR ~ Some Data from L2 learners

<table>
<thead>
<tr>
<th>Nonword</th>
<th>Aisha</th>
<th>Atif</th>
<th>Parmita</th>
<th>Patveer</th>
<th>Sierra</th>
<th>Santos</th>
<th>Martin</th>
<th>Clara</th>
</tr>
</thead>
<tbody>
<tr>
<td>jup</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>zid</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>pate</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>meb</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>wudoip</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>x</td>
<td>-</td>
</tr>
<tr>
<td>nigong</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>-</td>
</tr>
<tr>
<td>chaseedoolid</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>-</td>
</tr>
<tr>
<td>bieledoge</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>-</td>
</tr>
<tr>
<td>voesutoov</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
</tr>
</tbody>
</table>

<p>| Raw Score  | 5     | 1    | 3       | 2       | 2      | 3      | 4      | 1     |
| Standard Score | 8 | 5   | 6       | 6       | 6      | 6      | 6      | 6     | 5    |</p>
<table>
<thead>
<tr>
<th>Name</th>
<th>L1</th>
<th>Total C</th>
<th>Correct</th>
<th>Overall %</th>
<th>Correct C</th>
<th>Total C</th>
<th>% Correct</th>
<th>Correct C</th>
<th>Total C</th>
<th>% Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total Onset</td>
<td>Onset</td>
<td></td>
<td>Onset</td>
<td>Onset</td>
<td>Onset</td>
<td>Onset</td>
<td>Onset</td>
<td>Onset</td>
</tr>
<tr>
<td>Aisha</td>
<td>Arabic</td>
<td>27</td>
<td>15</td>
<td>0.81</td>
<td>9</td>
<td>7</td>
<td>0.60</td>
<td>9</td>
<td>7</td>
<td>0.78</td>
</tr>
<tr>
<td>Atif</td>
<td>Arabic</td>
<td>12</td>
<td>7</td>
<td>0.42</td>
<td>5</td>
<td>3</td>
<td>0.60</td>
<td>5</td>
<td>3</td>
<td>0.60</td>
</tr>
<tr>
<td>Parmita</td>
<td>Punjabi</td>
<td>15</td>
<td>9</td>
<td>0.79</td>
<td>6</td>
<td>7</td>
<td>0.86</td>
<td>6</td>
<td>7</td>
<td>0.86</td>
</tr>
<tr>
<td>Patveer</td>
<td>Punjabi</td>
<td>14</td>
<td>8</td>
<td>0.74</td>
<td>6</td>
<td>7</td>
<td>0.86</td>
<td>6</td>
<td>7</td>
<td>0.86</td>
</tr>
<tr>
<td>Sierra</td>
<td>Spanish</td>
<td>9</td>
<td>6</td>
<td>0.64</td>
<td>3</td>
<td>6</td>
<td>0.50</td>
<td>3</td>
<td>6</td>
<td>0.50</td>
</tr>
<tr>
<td>Santos</td>
<td>Spanish</td>
<td>17</td>
<td>13</td>
<td>0.74</td>
<td>3</td>
<td>8</td>
<td>0.38</td>
<td>3</td>
<td>8</td>
<td>0.38</td>
</tr>
<tr>
<td>Martin</td>
<td>Mandarin</td>
<td>18</td>
<td>16</td>
<td>0.70</td>
<td>5</td>
<td>9</td>
<td>0.56</td>
<td>5</td>
<td>9</td>
<td>0.56</td>
</tr>
<tr>
<td>Clara</td>
<td>Cantonese</td>
<td>5</td>
<td>3</td>
<td>0.63</td>
<td>2</td>
<td>4</td>
<td>0.50</td>
<td>2</td>
<td>4</td>
<td>0.50</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td>14.63</td>
<td>9.63</td>
<td>0.68</td>
<td>4.88</td>
<td>6.38</td>
<td>0.63</td>
<td>2.23</td>
<td>2.00</td>
<td>0.18</td>
</tr>
<tr>
<td>St.Dev</td>
<td></td>
<td>6.57</td>
<td>4.60</td>
<td>0.12</td>
<td>2.23</td>
<td>2.00</td>
<td>0.18</td>
<td>2.23</td>
<td>2.00</td>
<td>0.18</td>
</tr>
</tbody>
</table>
## L1 Typology

<table>
<thead>
<tr>
<th></th>
<th>Singleton Onsets</th>
<th>Singleton Codas</th>
<th>Onset Clusters</th>
<th>Coda Clusters</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Arabic</td>
<td>✓</td>
<td>✓</td>
<td>✗</td>
<td>✓</td>
</tr>
<tr>
<td>Punjabi</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Spanish</td>
<td>✓</td>
<td>Only alveolars</td>
<td>✓</td>
<td>?</td>
</tr>
<tr>
<td>Mandarin</td>
<td>✓</td>
<td>Only [n] and [ŋ]</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Cantonese</td>
<td>✓</td>
<td>Only nasals, [p̚], [t̚], [k̚]</td>
<td>✗</td>
<td>✗</td>
</tr>
</tbody>
</table>
NWR and L2 children

- Children in the early stages of L2 learning do not perform like monolingual children on NWR tasks.

- L1 can impact children’s production of the nonwords, specifically in reference to coda accuracy.

- Why don’t L2 children = L1 children?
L2 Children’s Phonological Development
Child vs. Adult

- Already acquired an L1
- Native-like competence
L2 Children’s Phonological Development Compared to L1 Development

- Potential for transfer
- Rapid Mastery
L2 Children’s Phonological Development
Developmental and Transfer Errors

- Developmental Errors
  - Made by all child L2 learners regardless of L1

- Transfer Errors (aka: cross-linguistic influence)
  - Correct productions in the L1 that are errors in the L2
Evidence for L1 Transfer

- Bilingual children are more accurate with phonemes shared between their two languages (Goldstein, 2004)

- Children can transfer phonological processes from one language to another
  - e.g., Spanish spirantization in English: ‘water’ → [waðə] (Amastae, 1982).

- Children can transfer phonemes from one language to another (e.g., Fabiano-Smith & Barlow, 2009)
  - e.g., English [ʒ] in Spanish
  - e.g., Spanish [β] in English
Why is there confusion about L1 effects?

- Different proficiency levels
- Different methods
- Syllable position is not included
Spontaneous Speech ~ Example 1
Spontaneous Speech ~ Example 1 Cont’d

*EXP: okay, so I want you to tell me about what you did at school today.
*CHI: huh?
*EXP: what did you do at school today?
*CHI: &mmm.
*EXP: did you play outside?
*CHI: yeah.
*CHI: my &mmm I &mmm my one friend.
*EXP: mhm.
*EXP: <she is> [/] she the helper.
*CHI: and [/] she is drawing.
*EXP: and she is what?
*CHI: and she is drawing [= drawning].
*OBS: she is drawing.
*EXP: she was drawing.
*CHI: I am.
*EXP: she was drawing you?
*EXP: or you were drawing?

*CHI: &um she (i)s picture drawing.
*EXP: &oh and what was the picture of?
*CHI: &hmm?
*EXP: what was the picture of?
*CHI: like me.
*EXP: she drew you?
*EXP: and what did you look like in the picture?
*CHI: she [/] <I have a> [/] she has cat [?].
*EXP: wow!
*EXP: and what else did you do at school today?
*CHI: &mmm.
*CHI: I go the music.
*EXP: &hh, what did you learn in music class?
*CHI: &uhh, number one.
*EXP: what (i)s that?
*CHI: number one.
Spontaneous Speech ~ Example 1 Cont’d

Onsets:
- baby [bebi]
- teddy [tævi]
- she [ʃi]
- family [fæmli]
- go [go]
- yellow [jɛlo]
- know [do]
- know [no]

Codas:
- doll [dɔl]
- cake [kek]
- dad [dæd]
- dad [dæt]

Onset Consonant Clusters:
- drawing [dərəɪn]
- dress [drɛs]
- play [ple]
- sleep [slɪ]
- sleeping [slɪpɪŋ]
<table>
<thead>
<tr>
<th>Onset C</th>
<th>Onset CC</th>
<th>Coda C</th>
<th>Coda CC</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.92</td>
<td>0.76</td>
<td>0.75</td>
<td>0.50</td>
</tr>
</tbody>
</table>
Spontaneous Speech ~ Example 2
Spontaneous Speech ~ Example 2 Cont’d

*EXP: did you play a game?
*CHI: 0.
%act: CHI nods.
*EXP: what game did you play?
*CHI: soccer.
*EXP: soccer +!?
*EXP: how do you play soccer?
*CHI: kicking the ball.
*EXP: you (a)re right.
*EXP: you have to kick the ball.
*EXP: and then what happens?
*CHI: you win.
*EXP: you win +!?
*EXP: do you always win?
*CHI: 0.
%act: CHI nods.
*EXP: really +!?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you always win?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
*CHI: 0.
%act: CHI nods.
*EXP: you never lose?
<table>
<thead>
<tr>
<th>Onset C</th>
<th>Onset CC</th>
<th>Coda C</th>
<th>Coda CC</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.91</td>
<td>0.70</td>
<td>0.55</td>
<td>0.31</td>
</tr>
</tbody>
</table>
## Spontaneous Speech Results ~ Syllable Position

<table>
<thead>
<tr>
<th>Name</th>
<th>L1</th>
<th>Onset C</th>
<th>Onset CC</th>
<th>Coda C</th>
<th>Coda CC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aisha</td>
<td>Arabic</td>
<td>0.94</td>
<td>0.87</td>
<td>0.79</td>
<td>0.41</td>
</tr>
<tr>
<td>Atif</td>
<td>Arabic</td>
<td>0.86</td>
<td>0.65</td>
<td>0.69</td>
<td>0.50</td>
</tr>
<tr>
<td>Parmita</td>
<td>Punjabi</td>
<td>0.92</td>
<td>0.76</td>
<td>0.75</td>
<td>0.50</td>
</tr>
<tr>
<td>Patveer</td>
<td>Punjabi</td>
<td>0.76</td>
<td>0.06</td>
<td>0.73</td>
<td>0.37</td>
</tr>
<tr>
<td>Sierra</td>
<td>Spanish</td>
<td>0.93</td>
<td>0.94</td>
<td>0.70</td>
<td>0.52</td>
</tr>
<tr>
<td>Santos</td>
<td>Spanish</td>
<td>0.91</td>
<td>0.70</td>
<td>0.55</td>
<td>0.31</td>
</tr>
<tr>
<td>Martin</td>
<td>Mandarin</td>
<td>0.91</td>
<td>0.80</td>
<td>0.63</td>
<td>0.55</td>
</tr>
<tr>
<td>Clara</td>
<td>Cantonese</td>
<td>0.85</td>
<td>0.51</td>
<td>0.43</td>
<td>0.16</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td>0.89</td>
<td>0.66</td>
<td>0.66</td>
<td>0.41</td>
</tr>
</tbody>
</table>
### L1 Typology

<table>
<thead>
<tr>
<th>Language</th>
<th>Singleton</th>
<th>Singleton Codas</th>
<th>Onset</th>
<th>Coda Clusters</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Onsets</td>
<td>Clusters</td>
<td>Clusters</td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Arabic</td>
<td>✓</td>
<td>✓</td>
<td>❌</td>
<td>✓</td>
</tr>
<tr>
<td>Punjabi</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Spanish</td>
<td>✓</td>
<td>Only alveolars</td>
<td>✓</td>
<td>?</td>
</tr>
<tr>
<td>Mandarin</td>
<td>✓</td>
<td>Only [n] and [ŋ]</td>
<td>❌</td>
<td>❌</td>
</tr>
<tr>
<td>Cantonese</td>
<td>✓</td>
<td>Only nasals, [p̚], [t̚], [k̚]</td>
<td>❌</td>
<td>❌</td>
</tr>
</tbody>
</table>
## Spontaneous Speech Results ~ Syllable Position

<table>
<thead>
<tr>
<th></th>
<th>L1</th>
<th>Onset C</th>
<th>Onset CC</th>
<th>Coda C</th>
<th>Coda CC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aisha</td>
<td>Arabic</td>
<td>0.94</td>
<td>0.87</td>
<td>0.79</td>
<td>0.41</td>
</tr>
<tr>
<td>Atif</td>
<td>Arabic</td>
<td>0.86</td>
<td>0.65</td>
<td>0.69</td>
<td>0.50</td>
</tr>
<tr>
<td>Parmita</td>
<td>Punjabi</td>
<td>0.92</td>
<td>0.76</td>
<td>0.75</td>
<td>0.50</td>
</tr>
<tr>
<td>Patveer</td>
<td>Punjabi</td>
<td>0.76</td>
<td>0.06</td>
<td>0.73</td>
<td>0.37</td>
</tr>
<tr>
<td>Sierra</td>
<td>Spanish</td>
<td>0.93</td>
<td>0.94</td>
<td>0.70</td>
<td>0.52</td>
</tr>
<tr>
<td>Santos</td>
<td>Spanish</td>
<td>0.91</td>
<td>0.70</td>
<td>0.55</td>
<td>0.31</td>
</tr>
<tr>
<td>Martin</td>
<td>Mandarin</td>
<td>0.91</td>
<td>0.80</td>
<td>0.63</td>
<td>0.55</td>
</tr>
<tr>
<td>Clara</td>
<td>Cantonese</td>
<td>0.85</td>
<td>0.51</td>
<td>0.43</td>
<td>0.16</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td>0.89</td>
<td>0.66</td>
<td>0.66</td>
<td>0.41</td>
</tr>
<tr>
<td>SD</td>
<td></td>
<td>0.06</td>
<td>0.28</td>
<td>0.12</td>
<td>0.13</td>
</tr>
</tbody>
</table>
Singleton Codas and Onset Clusters

**Singleton Coda**

**Onset Clusters**
Onset Clusters

<table>
<thead>
<tr>
<th>L1</th>
<th>tokens (contexts)</th>
<th>epenthesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sierra</td>
<td>Spanish</td>
<td>53</td>
</tr>
<tr>
<td>Santos</td>
<td>Spanish</td>
<td>33</td>
</tr>
<tr>
<td>Parmita</td>
<td>Punjabi</td>
<td>37</td>
</tr>
<tr>
<td>Patveer</td>
<td>Punjabi</td>
<td>65</td>
</tr>
<tr>
<td>Aisha</td>
<td>Arabic</td>
<td>68</td>
</tr>
<tr>
<td>Atif</td>
<td>Arabic</td>
<td>54</td>
</tr>
<tr>
<td>Martin</td>
<td>Mandarin</td>
<td>25</td>
</tr>
<tr>
<td>Clara</td>
<td>Cantonese</td>
<td>35</td>
</tr>
</tbody>
</table>

Mean: 46.63  SD: 15.68

Mean: 6.25  SD: 13.42
## Spontaneous Speech Results ~ Manner

<table>
<thead>
<tr>
<th></th>
<th>Approximants</th>
<th>Nasals</th>
<th>Fricatives</th>
<th>Interdental Fricatives</th>
<th>Affricate</th>
<th>Stop</th>
</tr>
</thead>
<tbody>
<tr>
<td>% (St.Dev)</td>
<td>0.82 (0.10)</td>
<td>0.86 (0.10)</td>
<td>0.77 (0.10)</td>
<td>0.30 (0.18)</td>
<td>0.69 (0.32)</td>
<td>0.77 (0.08)</td>
</tr>
</tbody>
</table>
With less than a year of exposure to English, child L2 learners are quite good with English consonants (80% correct).

Accuracy is impacted by syllable position and L1.

Sound class is not as important as for monolingual English-speakers.
## NWR and Spontaneous Speech

<table>
<thead>
<tr>
<th>Name</th>
<th>L1</th>
<th>Spontaneous Speech Sample Ranking</th>
<th>Spontaneous Speech Sample % Correct</th>
<th>Nonword Repetition Ranking</th>
<th>Nonword Repetition Task % Correct</th>
<th>Difference in %</th>
<th>Absolute Difference in Rankings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aisha</td>
<td>Arabic</td>
<td>1</td>
<td>0.88</td>
<td>1</td>
<td>0.81</td>
<td>0.07</td>
<td>0</td>
</tr>
<tr>
<td>Atif</td>
<td>Arabic</td>
<td>5</td>
<td>0.80</td>
<td>8</td>
<td>0.42</td>
<td>0.38</td>
<td>3</td>
</tr>
<tr>
<td>Parmita</td>
<td>Punjabi</td>
<td>2</td>
<td>0.86</td>
<td>2</td>
<td>0.79</td>
<td>0.07</td>
<td>0</td>
</tr>
<tr>
<td>Patveer</td>
<td>Punjabi</td>
<td>7</td>
<td>0.75</td>
<td>4</td>
<td>0.74</td>
<td>0.01</td>
<td>3</td>
</tr>
<tr>
<td>Sierra</td>
<td>Spanish</td>
<td>3</td>
<td>0.85</td>
<td>6</td>
<td>0.64</td>
<td>0.21</td>
<td>3</td>
</tr>
<tr>
<td>Santos</td>
<td>Spanish</td>
<td>6</td>
<td>0.78</td>
<td>3</td>
<td>0.74</td>
<td>0.04</td>
<td>3</td>
</tr>
<tr>
<td>Martin</td>
<td>Mandarin</td>
<td>4</td>
<td>0.81</td>
<td>5</td>
<td>0.70</td>
<td>0.11</td>
<td>1</td>
</tr>
<tr>
<td>Clara</td>
<td>Cantonese</td>
<td>8</td>
<td>0.69</td>
<td>7</td>
<td>0.63</td>
<td>0.06</td>
<td>1</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td>8</td>
<td>0.80</td>
<td>7</td>
<td>0.68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td></td>
<td>0.06</td>
<td></td>
<td></td>
<td>0.12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Real words are easier than nonwords.

BUT, most children have comparable accuracy across the two tasks.

Higher accuracy on one task is matched with higher accuracy on the other task.

Phonological Development matters in NWR performance.
Take home message

- Syllable position matters

- Nonword repetition tasks are not language independent.

- Phonology is part of spoken language. All assessments of oral language skills involve phonology.
Questions?

☐ Feel free to email me if you have any questions or need any of the citations for studies I have mentioned today.

  tamara.sorensonduncan@ualberta.ca