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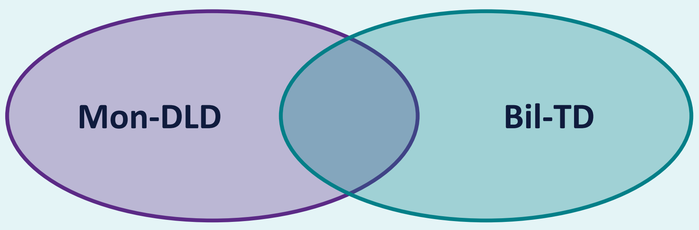
Developmental Language Disorder in the Aruban multilingual context

Investigating the CL-NWR task to standardize diagnosis and improve support

Why study DLD in Aruba?

Relevance to society

- Risk of **misdiagnosis**: language delay due to insufficient exposure, or real DLD? (Boerma et al., 2015)
- Assessments = **observations** or translations of Dutch tests based on **monolingual standards** (Sollie, 2015; MdC, personal communication)



Overlap in language difficulties

- Especially for cultural and linguistic **minorities**

Relevance to academia

- No research in **multilingual contexts**: only among bilingual immigrants
- **Non-language-specific tests** under evaluation (Armon-Lotem & Grohmann, 2021; Boerma et al., 2015)

Non-language-specific tests

- **LITMUS** tests
- Cognitive functions and **general linguistic knowledge**
- **Cross-linguistically and cross-culturally** applicable (Armon-Lotem & Grohmann, 2021; Boerma et al., 2015)

Research questions

1. **Multilinguals' performance** and affecting factors (item length, age): DLD vs TD
2. **Diagnostic accuracy** of the CL-NWR, relative to the SLP's diagnosis

Methods

Participants

10 with DLD

5 typically developing (TD)

- Age = 5;11 – 7;0 (M = 6;5), from 9 schools
- No cognitive disability or intelligence deficit
- Recruited via the Bureau Multidisciplinair Centrum (MdC) and school principals

Materials

Cross-Linguistic Non-Word Repetition task
(Chiat, 2015; Chiat & Polišenská, 2016)

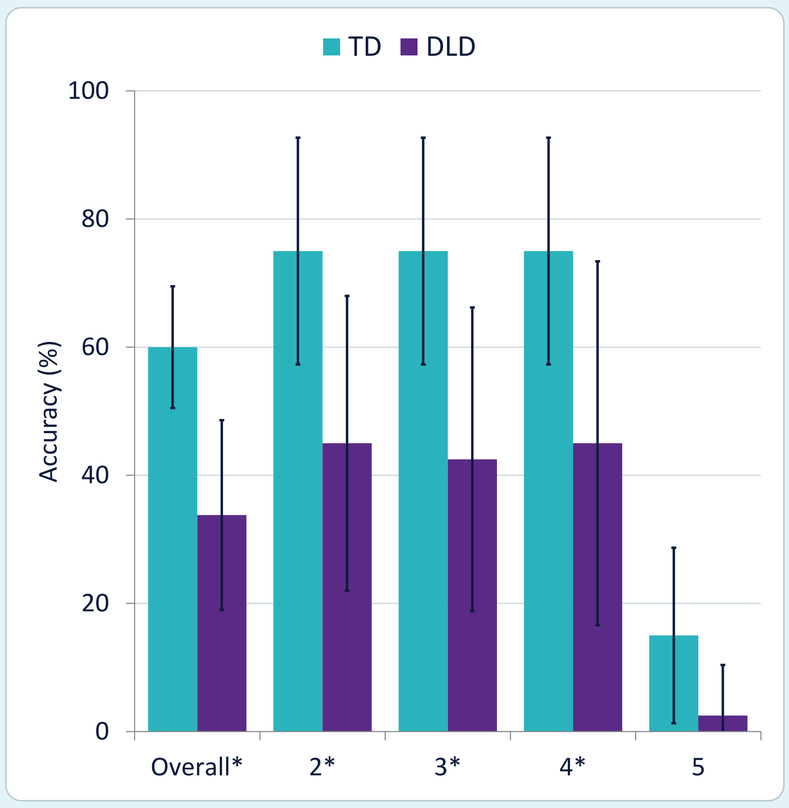
Hear a nonword → **Repeat it** → **Whole-item score**

- 2-to-5 syllables
- Common sounds + **neutral** stress

Syllables	Test items (n = 16)			
2	dula	zibu	nuli	nagi
3	bamudi	nalidu	sipula	lumiga
4	litizaku	mukitala	sipalita	kasulumi
5	sipumakila	maluziguba	litapimuti	duligasumu

- **Parents of Bilingual children Questionnaire** (PaBiQ): language exposure and development

Results



*Mean accuracy (%) by item length (syllables); error bars = SD. * p < .05 (Mann–Whitney U), TD vs DLD.*

- TD **60%** vs DLD **33.8%** overall (U = 1, p = .004); significant for 2-, 3- and 4-syllable items, not for 5 (p = .056)
- More **variability** in DLD group → heterogeneity
- No significant effect of **age**

ROC curve analysis

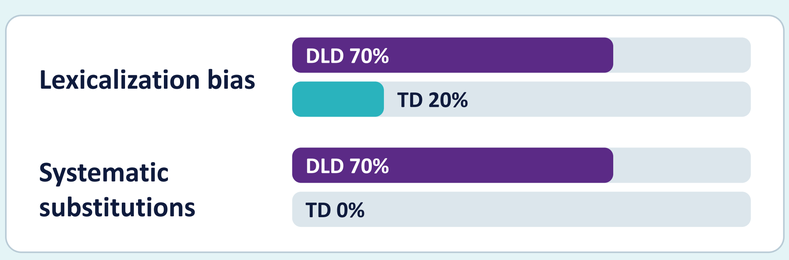
- **Threshold**: overall accuracy = 50%

84.5%	90.1%	80.1%
Accuracy *good*	**Sensitivity** *good*	**Specificity** *fair*

Other observations

Compared with bilingual DLD literature

- **Higher accuracy** (Boerma et al., 2015; Öberg & Bohnacker, 2024)
- **Lower accuracy threshold** (Boerma & Blom, 2017; Schwob et al., 2021)



- **Highest-scoring** participant = most often exposed to the most languages

Conclusions

- CL-NWR **discriminates** children with DLD from TD peers
- **Promising** for multilingual individuals
- Next: larger samples, DLD subtypes, **neuroimaging** research

Open questions

- Is the CL-NWR test truly **language-neutral**?
- Reliance on the **DLD diagnosis**
- Small sample (N = 15): preliminary evidence

Scan for references