



Towards less-biased language assessment: Exploring dynamic and processing-based assessments in diverse bilingual children

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Background

- Traditional language assessment methods index language knowledge
 - Performance is influenced by both language-learning ability & language experience (Ebert & Pham, 2019)
- Over 350 non-English home languages (L1s) spoken in U.S.
 - Highly variable language learning experiences for bilingual children (e.g., Kašćelan et al., 2022)

Traditional language assessments are inadequate for this population

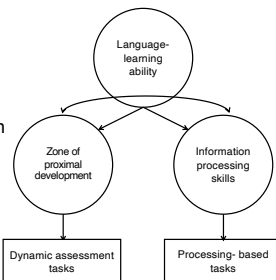
Alternative approaches may better capture language-learning ability

Dynamic assessment incorporates teaching into assessment

- Promising approach for bilingual children (Hunt et al., 2022; Orellana et al. 2019)

Processing-based tasks aim to measure skills that support language learning

- Linguistic & non-linguistic tasks exist (Armon-Lotem & Meir, 2016; Ebert & Pham, 2019; Tuller et al., 2018)



Research Purpose & Questions

Purpose: evaluate the potential of dynamic assessments and processing-based tasks to provide less-biased assessment within diverse bilingual populations

- Are scores on dynamic and processing-based assessments comparable across different L1 groups?
- Do scores on dynamic and processing-based assessments converge within a diverse group of bilingual children?

Tasks

English language comprehension

- Test for Auditory Comprehension of Language - 4th Edition (TACL-4; Carrow-Woolfolk, 2014), grammatical morphemes subtest score

Dynamic assessments

- Narrative level: Predictive Early Assessment of Reading and Language (PEARL; Petersen & Spencer, 2016), story grammar pre-test score
- Morpheme level: Novel morpheme learning task (Finestack, 2014), score under explicit learning conditions

Processing-based tasks

- Linguistic
 - Working memory: Clinical Evaluation of Language Fundamentals - Preschool (Wiig et al., 2020) Recalling sentences subtest score
 - Phonological short-term memory: Nonword repetition task (Dollaghan & Campbell, 1998), percent phonemes correct
- Nonlinguistic
 - Processing speed: Visual choice detection task (Kohnert & Windsor, 2004), reaction time
 - Sustained attention: Visual continuous performance task (Ebert et al., 2023)
 - Working memory: Auditory tonal working memory task (Ebert, 2014)

Participants

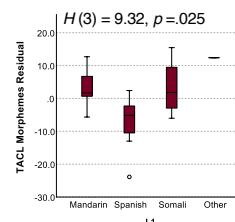
- Children aged 4-10 years who speak a non-English language at home
- Parents interviewed using the Alberta Language Environment Questionnaire (Paradis, 2010) & Alberta Language Development Questionnaire (Paradis et al., 2010)

	Mandarin	Somali	Spanish	Malayalam	All
N (M/F)	10 (6/4)	4 (0/4)	8 (4/4)	1	23
Age	5.84 (1.17)	7.99 (1.86)	6.53 (0.82)	5.74	6.45 (1.37)
NVIQ	115.2 (17.2)	106.5 (21.6)	85.13 (7.66)	104	102.7 (19.7)
Home L1 use	74.2% (18.3%)	17%*	61.8% (19.6%)	50%	65.2% (22.0%)
L1 develop.	0.79 (0.10)	0.83 (0.10)	0.74 (0.13)	0.80	0.78 (0.11)
Med. parent education	Grad degree	High school	Did not finish high school	Bachelors degree	Some college

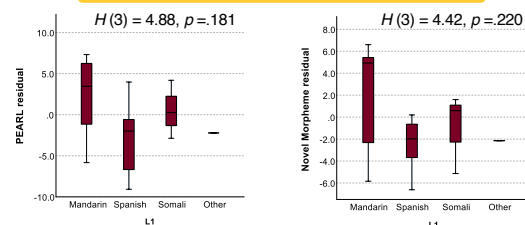
Results: Q1

Kruskal Wallis test comparing age-adjusted scores on each assessment across L1 groups

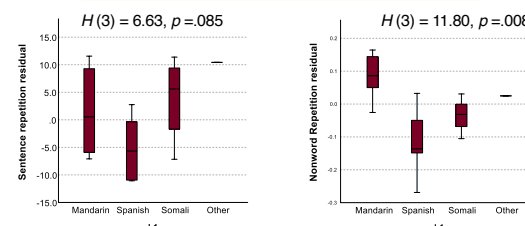
Language Comprehension



Dynamic Assessments

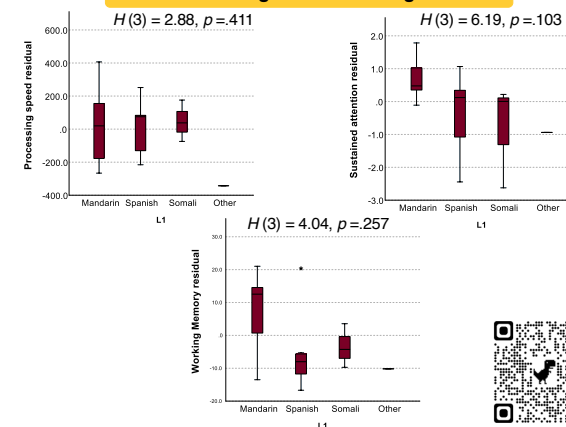


Linguistic Processing



Results: Q1 continued

Nonlinguistic Processing



Results: Q2

Bivariate and partial correlations (age removed) between tasks

	TACL	PEARL	Novel Morpheme	NWR	Sentence repetition	Proc. speed	Attention	WM
TACL	—	.66**	.57**	.53*	.70**	-.67**	.46*	.34
PEARL	.65**	—	.59**	.39	.37	-.30	.57**	.35
Novel morpheme	.45*	.56*	—	.51*	.42	-.23	.63**	.42
NWR	.48*	.35	.46*	—	.55*	-.08	.48*	.49*
Sentence repetition	.61**	.30	.28	.50*	—	-.38	.11	.23
Proc. speed	-.51*	-.22	.05	.11	-.16	—	-.38	-.15
Attention	.37	.54*	.58*	.43	-.04	-.25	—	.22
WM	.14	.29	.28	.44	.05	.16	.11	—

Bivariate correlations above diagonal; partial correlations below diagonal; * $p < .05$, ** $p < .01$

Conclusions & Future Directions

This preliminary investigation considered dynamic assessments and processing-based tasks in a diverse group of bilingual children

- Positive correlations between tasks support convergence
 - Across dynamic and processing task types
 - Across linguistic and nonlinguistic domains
- Traditional language assessments & linguistic processing tasks showed largest differences between L1 groups
 - But numerous demographic variables should be considered in group comparisons

We plan to establish the psychometric properties of dynamic assessments and processing-based tasks in kindergarten-aged bilingual children with diverse L1s

- Reliability:** are these assessments internally consistent and consistent over time?
- Structural validity:** do these assessments converge on a single language-learning ability or on multiple factors?
- Concurrent validity:** do these assessments agree with parent and teacher reports of language ability?
- Predictive validity:** do these assessments predict growth in the L1 and in English? Can they predict risk for poor language outcomes?

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