

# Optimizing English Language Assessments to Accurately Identify Impairment in Young Bilingual Children



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## Background

- English language tests that accurately identify developmental language disorder (DLD) in bilingual children are desperately needed since **93.5% of speech-language pathologists can only conduct assessments in English<sup>1</sup>**. These children are often misdiagnosed using invalid tools, or assessment - and thus intervention - is delayed.
- Amount of English exposure influences accuracy across specific grammatical forms<sup>2</sup>, and **tailoring English test items to exposure level improves diagnostic accuracy** for 7- to 9-year-olds<sup>3</sup>.
- Tailoring items may have different outcomes for younger children because markers vary by age and language development may interact with exposure in younger children.

**Does tailoring test items based on English language exposure increase diagnostic accuracy for bilingual children ages 4 to 6?**

## Method

### Participants

Data taken from larger study of the Bilingual English-Spanish Assessment (BESA)

	Total	Typically Developing	Language Impaired
N	208	153	55
Age in months	67.38 (9.88)	69.31 (8.95) ***	62 (10.46) ***
High English Exposure (n)	76	55	21
Balanced Eng/Span Exposure (n)	83	63	20
High Spanish Exposure (n)	49	35	14

Note: \*\*\* p<.001

### Measures

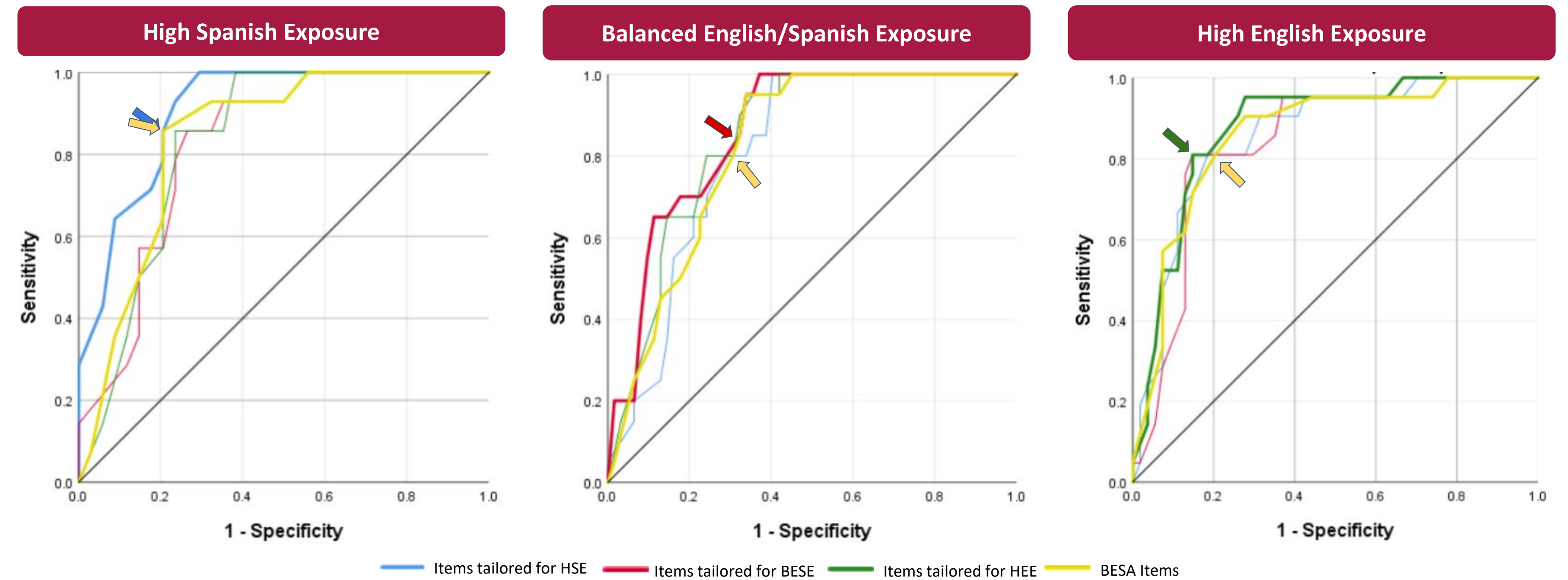
51 experimental cloze task items

Cloze Item Types	BESA	HSE Items	BESE Items	HEE Items
<b>Possessive -'s</b> (6) <i>This is the _____. (dog's bone)</i>	3	3	6	5
<b>3rd Person Singular -s</b> (8) <i>Every day the boy _____. (sleeps)</i>	3	6	7	5
<b>Regular past tense -ed</b> (9) <i>Yesterday, they _____. (played).</i>	3	4	2	2
<b>Plural</b> (6) <i>Here she has _____. (bananas)</i>	3	2	3	2
<b>Auxiliary</b> (5) <i>Here, they _____. (are fighting)</i>	3	1	4	1
<b>Copula</b> (4) <i>This one _____. (is fluffy)</i>	3	4	2	1
<b>Negation</b> (6) <i>These kids have candy, but these kids _____. (don't)</i>	2	6	4	6
<b>Passive</b> (7) <i>The bowl was broken by the baby.</i>	3	5	5	5

Note: Tailored item sets consist of all items for which TD-LI mean difference was  $\geq 3.0$

## Results

### ROC Analysis: Item Composites by Exposure Group



**Sensitivity:** % children with language impairment accurately classified as LI  
**Specificity:** % with typically developing language accurately classified as TD  
**Acceptable = >80%**  
**Good = >90%**

Exposure	BESA				Tailored Items			
	AUC	Sensitivity	Specificity	Cut Point	AUC	Sensitivity	Specificity	Cut Point
High Spanish	.84	.86	.79	6.5	.91	.86	.79	8.5
Balanced Eng/Span	.82	.80	.69	7.5	.86	.85	.68	9.5
High English	.86	.81	.80	8.5	.87	.81	.85	8.5

Note: ROC results presented correspond to the cut point that yielded best balance of sensitivity and specificity for each exposure group. AUC = area under the curve.

## Discussion

### Conclusions

- Overall, BESA items are robust across exposure groups when using different cut points. Re-selecting items tailored to exposure did not substantially change diagnostic accuracy.
- For both approaches, sensitivity is acceptable to good (i.e., accurately classifies impaired as such), but specificity is inadequate (i.e., misclassifies typical as impaired).
- Limitation: Current analysis does not account for variation within the included age range

### Future Directions

- Explore effect of age differences with a larger dataset
- Explore whether tailoring published BESA items for each exposure group improves specificity
- Explore whether combining cloze task with sentence repetition task items improves diagnostic accuracy for this age group

**References:** <sup>1</sup> American Speech-Language-Hearing Association (2020). Demographic profile of ASHA members providing bilingual services, year-end 2019. Available from [www.asha.org](http://www.asha.org). <sup>2</sup> Bedore, L. M., Peña, E. D., Anaya, J. B., Nieto, R., Lugo-Neris, M. J., & Baron, A. (2018). Understanding disorder within variation: Production of English grammatical forms by English language learners. *Language, Speech, and Hearing Services in Schools, 49*(2), 277-291. <sup>3</sup> Pratt, A., Peña, E., Bedore, L. (2020) How tailoring English grammatical items according to language dominance improves classification of DLD in bilinguals. Manuscript in preparation.