

Biography :

Jenna Lachance is a first year master's student at Laurentian University in the SLP program. She obtained her bachelor degree in Speech-Language Pathology in 2017. Her research interests include bilingual language acquisition and developmental language disorders. Jenna is currently completing her research on sentence imitation tasks when identifying developmental language disorders in bilingual children.

Research :

Sentence Imitation as a Diagnostic Tool for Bilinguals with Developmental Language Disorders

The assessment of bilingual children's language abilities can be a challenging task for clinicians because bilingual children learning a second language often present similar language characteristics to those with a developmental language disorder (DLD). Previous studies have indicated that sentence imitation is a useful tool to assess bilingual children (Archibald & Joannisse 2009; Thordardottir & Brandeker, 2012). More specifically, bilingual children with DLD typically score lower on sentence imitation tasks than their typically developing counterparts. Sentence imitation (SI) tasks are constructed with words existing in the target language. Therefore, it is expected that it would be influenced by previous language exposure.

The goal of this study was to examine the effects of bilingual exposure on bilingual children's performance on French and English SI tasks, as well as to determine the accuracy of the tasks at identifying DLD in bilingual school-aged children who reside in a French minority context.

The SI subtests from both the English CELF-5 and the French CELF CDN-FR were used. Seventy-four Bilingual children between the ages of five and six participated in this study, including a group of typically developing (TD) bilingual children (n = 60) and a group of bilingual children with DLD (n = 14). The English-French and French-English bilingual participants completed the SI tasks in either French, English or both depending on their language abilities.

Results indicated that participants with DLD scored lower on the SI tasks in both languages in comparison to their TD counterparts. For the bilingual children who completed both tasks, results showed that French-English bilingual participants scored higher on the French SI task and that the English-French bilingual participants scored higher on the English SI tasks. This confirms that SI tasks are accurate in identifying DLD and that exposure to the target language impacts performance.

Sensitivity and Specificity of Sentence Imitation for Bilinguals with Developmental Language Disorders

ORTHOPHONIE



Abstract: Studies indicate that sentence imitation tasks (SI) are useful tools when assessing bilingual children. Bilingual children with developmental language disorders typically score lower on SI tasks in comparison to their typically developing (TD) counterparts. The goal of this study was to examine the influence of bilingual exposure to languages on SI tasks, as well as to determine the accuracy of both tasks when identifying PLI in bilingual children. Significant differences were found between the TD and DLD groups. SI tasks in this linguistic minority context had good specificity but poor sensitivity measures.

INTRODUCTION

The goal of this study was to examine whether the CELF SI subtests could accurately identify developmental language disorders (DLD) in bilingual children living in a linguistic minority context.

Children who have DLD, approximately 2 children per classroom (Norbury et al., 2016), have language problems that are severe and interfere with everyday life along with poor prognosis that is not linked to clear biomedical etiologies (Bishop, Stowling, Thompson & Greenhalgh, 2017). Given the complex nature and misconceptions of this disorder, it often goes undetected.

It is a challenging task for clinicians to identify DLD in bilingual children living in a linguistic minority context due to different levels of language exposure.

A previous study conducted by Thordardottir & Brandeker (2012) indicated that SI tasks are **useful** and **unique tools** when assessing bilingual children.

- Bilingual children will not be disadvantaged if they have different levels of exposure to the target language.
- Children with DLD are at risk of deficits.

The present study was conducted in North-Eastern Ontario, a region where English is the majority language and French is the minority language.

OBJECTIVE:

The purpose of this study was to examine the effects of bilingual exposure on bilingual children's performance on French and English Sentence Imitation (SI) tasks, as well as to determine the accuracy of the tasks at identifying DLD in bilingual school-aged children

RESEARCH QUESTIONS:

- Do varying amounts of exposure to the target language have an impact on vocabulary scores and SI tasks?
- Do the CELF 5/CELF CDN-FR SI tasks accurately distinguish bilingual TD children from bilingual children with DLD?

METHOD

PARTICIPANTS

- 74 bilingual children in total: French-English (F-E) and English-French (E-F) speaking children participated.
- All participants attended French public schools throughout North-Eastern Ontario.
- A group of typically developing (TD) children and a group of children previously identified as having DLD by 2 speech-language pathologists participated in this study.

Table 1. Participant characteristics

	FRENCH-ENGLISH (n=37)	ENGLISH-FRENCH (n=37)
Age (months)	65.1 (2.8)	64.5 (2.8)
TD	25	35
PLI	7	7
Girls	11	18
Boys	21	24

Table 2. Performance on measures of language: Mean and (standard deviation)

Language Measure	FRENCH-ENGLISH				ENGLISH-FRENCH			
	TD	DLD	TD	DLD	TD	DLD	TD	DLD
CELF 5 (SI)	10.5 (2.5)	8.5 (2.5)	10.5 (2.5)	8.5 (2.5)	10.5 (2.5)	8.5 (2.5)	10.5 (2.5)	8.5 (2.5)
CELF CDN-FR (SI)	10.5 (2.5)	8.5 (2.5)	10.5 (2.5)	8.5 (2.5)	10.5 (2.5)	8.5 (2.5)	10.5 (2.5)	8.5 (2.5)
WVocab	10.5 (2.5)	8.5 (2.5)	10.5 (2.5)	8.5 (2.5)	10.5 (2.5)	8.5 (2.5)	10.5 (2.5)	8.5 (2.5)
WVocab-FR	10.5 (2.5)	8.5 (2.5)	10.5 (2.5)	8.5 (2.5)	10.5 (2.5)	8.5 (2.5)	10.5 (2.5)	8.5 (2.5)

Table 3. Independent samples t test

F-E Participants	TD	DLD	t	df	p
CELF 5 (standard score)	9.87 (2.12)	8.25 (1.29)	1.225	11	0.246
CELF CDN-FR (standard score)	9.28 (2.33)	6.87 (2.12)	2.875	20	0.007*

Table 4. Correlations between various language measures and levels of exposure

VARIABLES	CELF 5 (SI)	CELF CDN-FR (SI)	WVocab	WVocab-FR
CELF 5 (SI)	1.000	0.321*	0.281*	0.181
CELF CDN-FR (SI)	0.321*	1.000	0.181	0.281*
WVocab	0.281*	0.181	1.000	0.321*
WVocab-FR	0.181	0.281*	0.321*	1.000

SCORING

The CELF 5/CELF CDN-FR SI tasks were scored as per manual procedures.

RESULTS

RESEARCH QUESTION 1.

TD children obtained higher scores than bilingual children with DLD on the CELF 5 and CELF FR-CDN SI tasks. Descriptive analyses, the Mann-Whitney and independent samples t tests showed significant differences between both groups on the CELF SI tasks (when completed in participant's dominant language).

Table 5. Sensitivity, specificity, positive and negative likelihood ratios for each SI tasks at three cutoff points: -1 SD, -1.28 SD, and -2 SD.

	-1 SD	-1.28 SD	-2 SD
CELF 5 (SI)	0.70	0.50	0.30
CELF CDN-FR (SI)	0.80	0.60	0.40
WVocab	0.90	0.70	0.50
WVocab-FR	0.80	0.60	0.40

The Mann-Whitney test revealed similar results as the independent samples t test.

Neither the French nor the English SI tasks were correlated with varying levels of language exposure. However, both tasks were correlated with vocabulary measures.

Table 6. Correlations between various language measures and levels of exposure

VARIABLES	CELF 5 (SI)	CELF CDN-FR (SI)	WVocab	WVocab-FR
CELF 5 (SI)	1.000	0.321*	0.281*	0.181
CELF CDN-FR (SI)	0.321*	1.000	0.181	0.281*
WVocab	0.281*	0.181	1.000	0.321*
WVocab-FR	0.181	0.281*	0.321*	1.000

RESEARCH QUESTION 2.

The CELF 5/CELF CDN-FR SI tasks did not accurately rule in the presence of DLD. However, both tasks had a fair to good discriminant accuracy at ruling out DLD.

Table 5. Sensitivity, specificity, positive and negative likelihood ratios for each SI tasks at three cutoff points: -1 SD, -1.28 SD, and -2 SD.

	-1 SD	-1.28 SD	-2 SD
CELF 5 (SI)	0.70	0.50	0.30
CELF CDN-FR (SI)	0.80	0.60	0.40
WVocab	0.90	0.70	0.50
WVocab-FR	0.80	0.60	0.40

*The participant completed one of the two tasks, that score was used. If the participant completed both tasks, the highest score was used. Sens: Sensitivity; Spec: Specificity; PPV: Positive likelihood ratio; NPV: Negative likelihood ratio. Sensitivity: The ability of a clinical tool to accurately detect DLD. Specificity: The ability of a clinical tool to accurately reject the presence of DLD in those who do not have the disorder. Likelihood ratios: a likelihood ratio > 1: a child who gets an SI score is more likely to have DLD than not to have DLD. A likelihood ratio < 1: a child who gets an SI score is more likely to not have DLD than to have DLD.

Both the English and French SI tasks had fair to good specificities (true negatives) at the -1 SD (16th percentile) cutoff and -1.28 SD (10th percentile) cutoff respectively, however the tasks missed an unacceptable number of true positives with sensitivity levels as low as 0. In terms of likelihood ratios, there was a lot of variance. For the CELF CDN-FR Rph task, the -1.28 SD likelihood ratios were higher than the -1 SD ratios with a positive ratio of 5.38 and a negative ratio of .62. For the CELF-5, the positive likely ratio was higher at -1 SD at 3.80 with a negative ratio of 0.51 than for the other two cutoffs. When combining the specificity and sensitivity scores and likelihood ratios, the cutoffs that appear to rule out DLD are -1 SD for the CELF-5 SI and for the 'Highest scores' and -1.28 SD for the CELF CDN-FR Rph. In all cases, the -1.5 SD cutoff was inappropriate.

CONCLUSION

Results showed that both the SI tasks could be used in an assessment to identify DLD in bilingual children **living in a linguistic minority context**. Both the SI tasks accurately discriminated TD bilingual children from their TD peers. Also, TD participants with less exposure to the minority language (French) were disadvantaged during the SI tasks; however, this was not the case for the majority language (English). DLD participants with less exposure were disadvantaged in both cases.

For French-English bilingual participants, the CELF CDN-FR was most discriminating and for English-French bilingual participants, the CELF 5 was more discriminating. Thus, the SI task completed in the participant's dominant language may be the most discriminating tool when assessing DLD in bilingual children. However, this task needs to be used in conjunction with other tests due to its low sensitivity in this linguistic minority context.

SELECTED REFERENCES

Boyd, S. L., & Swanson, H. L. (2013). The effect of bilingual exposure on reading and spelling in children with reading difficulties. *Journal of Experimental Psychology: Applied*, 19(1), 1-11.

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Boyd, S. L., Swanson, H. L., & Zhang, C. (2015). The effect of bilingual exposure on reading and spelling in children with reading difficulties. *Journal of Experimental Psychology: Applied*, 21(1), 1-11.

Photo : Jenna's poster that was presented at Speech-Language and Audiology Canada's conference in Edmonton, May 2018.