

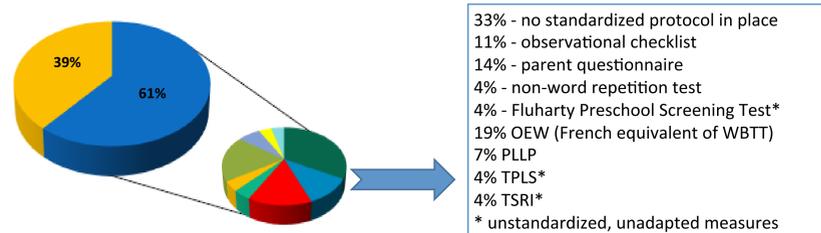
## A look at a Canadian linguistic minority outside Québec

**Abstract :** The period spanning from kindergarten to grade 3 represents a critical learning period for elementary level students. The purpose of this longitudinal and cross-sectional study is to standardize and validate the *Speech and Language Profile*, a speech and language screening tool developed by and for educational Speech-Language Pathologists. Extensive literature review as well as polls carried out throughout Ontario and Québec revealed that there does not seem to be a gold standard protocol agreed upon for use by Speech-Language Pathologists for the purpose of identifying children in need of speech and language services. The reliability and validity measures obtained will draw upon data taken from administering the screening tool, which will be measured against each individual child's academic performance through teacher report and standardized testing, including numeracy and literacy scores obtained by the Education Quality and Accountability Office's provincial mandatory standardized testing. This study hopes to demonstrate high predictive and concurrent validity of this tool in both of Canada's official languages, as well as a high interrater agreement. Favorable results could support the use of this tool by educational Speech-Language Pathologists to help them determine, at the earliest possible moment in the child's academic trajectory, which services would be required in order to maximize the students' learning potential. A high level of predictive and concurrent validity could also support the importance for standardizing this tool with other populations in minority and majority language settings at an international level.

### Context

In 2001, a team of franco-ontarian SLPs employed by the Conseil scolaire catholique du Nouvel-Ontario in Sudbury, Ontario set out to design a tool that would help them identify which children should receive community-based speech and language services upon entry into Junior Kindergarten (from 46 to 58 months). In 2007, a doctoral research aimed at validating and standardizing the *Profil de la langue, du langage et de la parole (PLLP or Speech and Language Profile)*.

An internet poll carried out in 2008 confirmed that there is no gold standard used to identify speech or language delay in francophone children attending French-language schools. Outside Québec, these French-language schools bask in anglophone communities, making it difficult for some children to master the French language, especially when their only exposure to their second or third happens behind school doors. Of 74 respondents (49% response rate), 39% responded that there was no protocol in place for a universal screening in JK in their school boards. Of the 61% who responded that there is a protocol in place for screening for speech and language delay in their school boards, here is what they are using as a screening tool :



Not all types of reliability and validity can be demonstrated on one single test. Researchers have said that when 3 measures of reliability are demonstrated, the test is said to be statistically sound provided it respects the basic laws of statistical analysis (i.e. **sample size, appropriateness and effectiveness of test used**). ... this study aims to measure X types of reliability and validity.

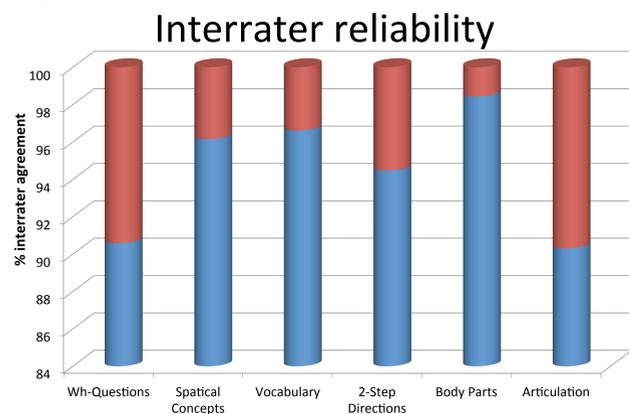
### Data and results

#### Normative sample

Chi-square analysis ( $p < 0,05$ ) indicate that on the whole, test items were consistent with existing theory. No significant difference was found between the years the PLLP was administered, nor did results reveal a significant difference linked to sex or language.

**Test-retest reliability** results show universal agreement among 19 out of 48 items, and a no significant difference on McNemar analysis ( $p < 0,05$ ) for 24 items, leaving 5 items for which the McNemar showed significant difference. Further investigation is needed and is presently underway to determine why the test-retest agreement was poor on the following targets: /l/, /s/, vocabulary word « cup » and the question « Why ? » Since the PLLP is aimed at finding children experiencing language delay between 3 years, 10 months and 4 years, 10 months, it is believed that improvement due to maturation has occurred on the afore-mentioned targets.

**Interrater reliability** results show high interrater agreement, ranging from 90% to 98%, depending on subtest.



#### Criterion-related validity

Alongside the PLLP, the following tests were administered :

- Échelle de vocabulaire en images – Peabody (ÉVIP)
- Carrow-Woolfolk, Edmonton Normed Narrative Instrument (ENNI)
- Concepts and directions (CELF-CDN-FR)
- Sentence repetition (CELF-P)
- Rapid automatic naming
- Number repetition
- Non-word repetition.

Criterion related validity results show OU Data analysis is ongoing

#### Predictive validity

The results of 2284 PLLP scores were measured against their report card grades from grade 1 to grade 4 as well as on EQAO provincial testing. Preliminary predictive validity results indicate a low correlation in all areas. Correlation was also low when measuring academic achievement against EQAO provincial testing, even within the same school year. Correlation of PLLP scores and academic achievement is comparable to that between academic achievement and EQAO provincial testing.

#### Item analysis

#### Internal consistency

### Methods

This is an observational and cross-sectional study aimed at demonstrating reliability and validity of the PLLP.

#### • OBSERVATIONAL PIECE

➤ **Normative sample** : Data were obtained through administration of the PLLP in 2004, 2005, 2008, 2009 and 2010. Analysis of data will determine if there is a difference in results obtained during these years, and whether this difference can be attributed to sex or language (French or English) of administration ( $n = 2284$ ).

➤ **Test-retest reliability** : The PLLP was administered once in October 2008 and again in January 2009 ( $n = 24$ ). The goal is to establish test stability over time. Test-retest reliability refers to the technique used to measure the correlation between the scores obtained by the same persons on 2 administrations of the test.

➤ **Interrater reliability**. The PLLP was administered as part of the interrater reliability study. All sessions were videotaped. 5 SLPs who were blind to the original test results rated the children's test scores using the same test form as used by the original examiner, while watching the videotaped session. The goal is to establish the transparency of the test. ( $n=75$ ) Interrater reliability refers to the degree to which the same individual would receive the same score, even if the test was administered by different examiners.

➤ **Criterion-related validity**. The PLLP will be administered alongside other assessment batteries normed in Québec. This data collection is part of another doctoral study (see Mayer-Crittenden, PhD candidate, Human Studies, Laurentian University).

**Concurrent validity** refers to the effectiveness with which the test is able to predict an individual's performance in specified activities or on other tests administered at the same time or within a short interval.

#### • CROSS-SECTIONAL PIECE

➤ **Predictive validity** : Test scores obtained on the PLLP will be measured against these individuals' academic achievements (report card results) in grades 1 through 4 (when available), as well as provincial test results (EQAO) in reading, writing and mathematics. Results of speech and language assessments will be part of this piece (when available). Predictive validity refers to the effectiveness with which a test is able to predict future performance in specified activities or on like tests that will be administered after a longer interval.

#### • TEST ANALYSIS

- Item analysis
- Internal consistency

### Conclusions

There is sufficient evidence to suggest that the PLLP should be used to identify JK students who would benefit from further speech and language assessment. Validity measures demonstrate the PLLP's stability across time (test-retest reliability), and across examiners (interrater agreement).

Preliminary results indicate a low correlation between the PLLP test results and academic achievement. (grades obtained on report cards in grades 1 to 4). By the same token, data obtained for the same sample indicate a low correlation between academic achievement in grades 1 to 4 and EQAO provincial test results.

Statistical analysis aside, the PLLP is available in French and English and provides an excellent platform for Speech-Language Pathologists who wish to identify the students in greatest need for services, as quickly as possible (average assessment time : 12 minutes). From a system-wide perspective, it enables them to manage their caseload lists through the automated process that accompanies this screening battery. From a child-centered perspective, the SLPs are able to provide recommendations\* based on their short interaction.

\*Possible recommendations include audiological assessments, how to target specific speech-sounds or how to enhance understanding or use of language skills (i.e. following directions or oral vocabulary)

**Direct benefit** : All children entering JK at the CSCNO have been seen and/or flagged as requiring intervention or follow-up.

### Future directions

Further investigation is required to identify possible reasons for the low correlation between academic achievement and EQAO testing.

Further results will be published as part of this author's doctoral thesis.

Development of an iPad application currently in the works to enable S-LPs to administer the PLLP and enter data online.

### References

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