

Identification of Specific Language Impairment in Multilingual Contexts: Preliminary Validation of a Short Parental Bilingual Questionnaire in Lebanon*

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Abstract

Assessing children with Specific Language Impairment (SLI) in multilingual contexts is challenging for speech language therapists given that language patterns in bilinguals and in children with SLI are often reported to be remarkably similar and that screening language tests are not standardized on bilingual populations. The present study aims to validate the use of a parental questionnaire focusing on early language development, the languages spoken by the child, the use of languages in his/her environment, and information on linguistic difficulties within the family, as a complement to language assessment in multilingual contexts. Thirty-three Lebanese/French bilingual children (12 with SLI and 21 with typical development) and their parents participated in this study in Lebanon. The parents were interviewed via the questionnaire while the children were administered standardized language tests in each language. Data analysis showed that the parents' answers to the questionnaire were coherent throughout and that some variables of the questionnaire strongly discriminated between the two groups of children, in particular the age of the first words and first sentences. Moreover, although significant correlations were found with language test scores, the answers to the questionnaire allowed us to refine the interpretation of the performance on the standardized tests, thus demonstrating the value of the parental questionnaire as a complementary tool to clinical evaluation.

Keywords: Specific Language impairment, Bilingualism, Parental questionnaire, Lebanese, French

Introduction

This article focuses on the assessment of language disorders in multilingual environments. The most common language disorder in childhood is Specific Language Impairment (SLI). SLI is a behaviourally defined syndrome affecting language development: Language is slow to emerge and remains impaired through childhood and beyond ([1], [2], [3], [4]). Crucially, children with SLI don't show any signs of neurological damage or hearing loss, or any deficits in motor skills and non-verbal intelligence. SLI is usually diagnosed in children via standardized language tools, such as the New tasks for the examination of language (N-EEL) battery in French.

Accurate identification of SLI in bilinguals is a challenge because the language tests used by speech language therapists (SLT) are not appropriate for this population since they were initially standardized on monolinguals ([5], [6], [7], [8]). Interpreting the scores obtained on these tests by bilingual children is therefore impossible. Moreover, comparative studies looking at language development in children with SLI and children learning a second language (L2) have reported striking parallels between the two populations, especially in grammatical morphology [9], such as use of tense and subject-verb agreement (for English) and object clitic production (for French) ([10], [11], [7]). Consequently, there are widespread concerns about diagnosing SLI in multilingual societies. The risk of not understanding the nature of language difficulties in bilingual children, that is, whether they are related to bilingualism or SLI, is real. Diagnostic errors such as under-identification or over-identification of language difficulties may emerge ([12], [7]) due to the lack of appropriate tools to assess children in situations of multilingualism ([13], [8]). Thus, new diagnostic procedures become necessary in such contexts.

The multilingual context of Lebanon is a prime example of the challenges faced by SLTs. In Lebanon, Lebanese is spoken by the majority of the population (93%), along with

foreign languages such as French and English, which are widely used by the population (45% and 40% respectively). Modern Standard Arabic is also taught at school ([14], [15], [16], [17]). Moreover, in schools, most teaching is done in the L2 ([14], [17]). This is not without consequences for language development and mastery of languages in Lebanese children. External factors, such as length of exposure and context of exposure to the different languages, as well as use of language and linguistic richness should be taken into account during the assessment and diagnosis of language disorders. Due to the recent appearance of the speech language therapy profession in Lebanon and to the lack of standardized assessment tools, the diagnosis of SLI is very difficult to reach. To date, professionals and clinicians have been using qualitative assessments of language, which may lead to faulty identification of children with and without SLI. This has become a public health problem.

In order to address this situation, current trends in international research have highlighted the use of parental questionnaires as a measure for identification of SLI in bilingual children. Such questionnaires have been found to be an accurate source of information on the child's early milestones and current language skills ([18], [19]). A preliminary study on the so-called Beirut Tours Questionnaire [20], which was largely inspired by Paradis' (2010) ALEQ questionnaire, was conducted in Beirut [21]. It showed that the questionnaire could be used in the Lebanese context, allowing reliable evaluation of the language skills of the children. The study also demonstrated that the questionnaire could discriminate between bilingual children suspected of SLI (Bi-SLI) and typically-developing bilingual children (Bi-TD), that is children who had not been diagnosed with SLI. Following this pilot study a revised version of the questionnaire entitled "Questionnaire for Parents of Bilingual Children " (PaBiQ) (COST Action IS0804)²¹ was developed in order to make it shorter and simpler to use by SLTs.

The primary objective of the present study is to perform

²¹ COST Action IS0804, « Language Impairment in a Multilingual Society : Linguistic Patterns and the Road to Assessment » (<http://bi-sli.org/>).

a preliminary validation of the PaBiQ on a larger Lebanese population (from different parts of the country), and with more Bi-SLI children (there were only seven of them in the previous study). Data on the developmental history, context of language use, linguistic abilities of the child, as well as information about the parents were collected through the questionnaire. These data were then confronted to the results of the children on standardized tests in order to determine whether the PaBiQ could distinguish between Bi-SLI and Bi-TD children and thus whether it could be used as a complementary tool for the diagnosis of SLI in Lebanon.

Method

Participants

Thirty-three bilingual children participated in the study. There were 21 bilingual Lebanese/French children in the TD group (8 girls and 13 boys) with an age range of 5;7 to 6;6 ($M = 6;3$ and $SD = 0;3$), as shown in Table 1. These children had not been identified for language difficulties and had no motor problems and no sensory or neurological disorders. They were recruited in three regions across Lebanon: North, South and Greater Beirut. The majority of Bi-TD children were exposed, from birth, to Lebanese (20/21) and to French (18/21). The mean age of exposure to Lebanese was 2.08 months ($SD = 10.14$); for French, it was 5.04 months ($SD = 13.12$).

The second group consisted of 12 Lebanese/French children (7 boys and 5 girls) who were identified as having SLI by SLTs. They didn't display any associated disorders, such as epilepsy. They were recruited in Classes Orange (a special school for children with difficulties), the Speech and Language therapy Center of Saint Joseph University of Beirut and in the Aida Naffah Najjar Speech and language therapy center. They were aged between 5;7 and 7;10 ($M = 6;8$ and $SD = 0;7$). All Bi-SLI children were exposed to Lebanese from birth. This was also the case for French for some of the children (3/12). For others exposure to French started when they were 1 year old (3/12), 2 years old (3/12) or 3 years old (3/12). The mean age of exposure to French was 18 months ($SD = 13.16$) (see Table 1).

Table 1: Details on the participants

Group	N	Age (<i>SD</i>)	Age- range	Age of first exposure to Lebanese (<i>SD</i>)	Age of first exposure to French (<i>SD</i>)
TD	21	6;3 (0;3)	5;6-6;7	2.08 (10.14)	5.04 (13.12)
SLI	12	6;6 (0;7)	5;8-7;8	0	18 (13.16)

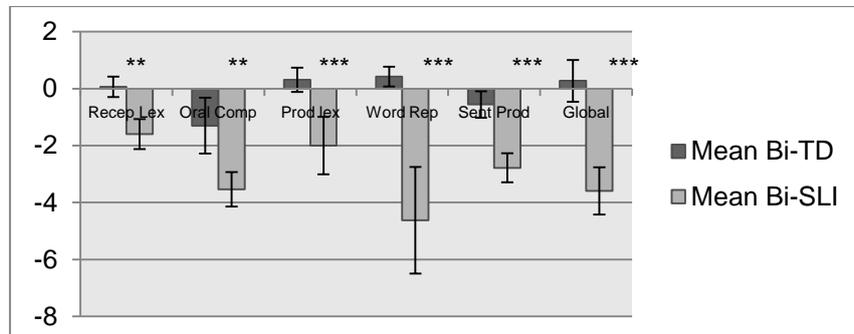
Age is represented as x;y.z ,where x=number of years, y=number of months, and z=number of days

Materials and procedures

Assessment of oral language

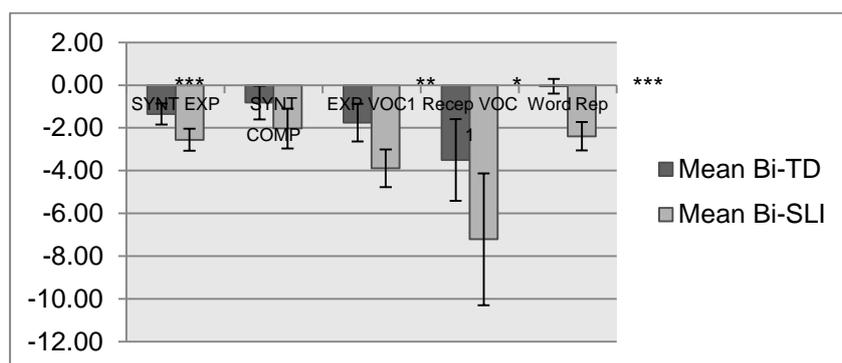
Two standardized test batteries were used to assess the language skills of the participants in each language. The assessment of Lebanese was done via the Evaluation of Oral Language - Lebanese (ELO-L) battery [22], which is an adapted version of a French battery, Evaluation of Oral Language [23], to Lebanese. As shown in Figure 1, significant differences between the Bi-TD and Bi-SLI groups emerged on each sub-test of the ELO-L (Receptive lexicon, Oral Comprehension, Lexicon in production, Word repetition, Sentence production) and on the global score. However, low scores were obtained by the Bi-TD children on Oral comprehension (-1.61) and sentence production (-0.75).

Figure 1: Between-group comparisons of ELO-L sub-tests and global z-scores (* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$)



Assessment of French was done via four sub-tests of the N-EEL [24]: oral morphosyntactic comprehension (SYNT COMP), Morphosyntactic expression (SYNT EXP), Expressive vocabulary 1 (EXP VOC 1), and Receptive vocabulary 1 (Recep VOC 1). For phonology we used the Word repetition (Word Rep) sub-test of the BILO 3 battery [25]. The results are displayed in Figure 2. As can be seen, although the two groups differed significantly on almost every measure, low scores were obtained on a vast majority of sub-tests for both groups of children. For the Bi-TD children, this was particularly true for Morphosyntactic expression (-1.35), Expressive vocabulary 1 (-1.76), and Receptive vocabulary 1 (-3.50).

Figure 2: Between-group comparisons of N-EEL and BILO 3 sub-tests z-scores (* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$)



To summarize, results on standardized tools revealed significant between-group differences for all ELO-L sub-tests

and for almost all sub-tests in French. Low performance was also displayed by the Bi-TD children on some measures in Lebanese and in French, which in some cases could be interpreted as a cause for concerns. These results, however, should be considered with caution because of the bilingual situation of the children, and they were further analysed via the parents' answers on the PaBiQ.

Assessment of non-verbal IQ

Raven's progressive Matrices (Raven, 1964) were administered to all participants in order to evaluate their non-verbal IQ. All Bi-TD children had scores above the 5th percentile ($M = 18$ and $SD = 4.88$), except for one. For the Bi-SLI group, the mean was 14 ($SD = 5.8$), with three children scoring below the 5th percentile.²²

Parental questionnaire

We prepared a Lebanese and a French version of the PaBiQ which included the same sets of questions:

- Specific and open-type questions, leading to numerical or nominal answers (e.g. *At what age did your child produce his/her first word?*)
- Closed-type questions leading to a yes or no answer (e.g. *Before your child was 3 or 4 years old, were you worried about his or her language?*)
- Single choice questions, leading to scores on a numerical scale (e.g. *Before the age of 4, was your child in contact with Lebanese?* 0=never (0%); 1=rarely (25%); 2=sometimes (50%); 3=often (75%); 4=always (100%))

The PaBiQ consists of seven sections covering the following topics:

1. General information about the child (e.g. date and place of birth; languages currently spoken by the child)

²² Since the initial recruitment of Bi-SLI children was made upon the « label » assigned to SLI in Lebanon, we chose to keep the children with low scores on Raven's Matrices in the study.

2. Early milestones (e.g. age of first word and first sentences; age of first exposure to the language, language exposure context before the age of 4)
3. Current language skills (in comparison with the child's peers) in terms of (1) expressive abilities, (2) level of performance in a language, (3) capacity in formulating correct sentences, (4) parental satisfaction with respect to the child's expressive language, (5) possible frustration of the child during communication failures.
4. Languages used at home (with parents, siblings and family members)
5. Language use outside the home during routine activities (reading, watching TV, etc.) and with the child's friends. A score of linguistic richness is calculated for each language.
6. Information about the parents: (1) place of birth, (2) current occupation and language(s) used at work, (3) education level, and (4) proficiency level in Lebanese, French and English (via self-assessment).
7. Parents' and siblings' difficulties in (1) reading and writing skills, (2) language comprehension, and (3) oral expression.

The interviews took place at the family's home or at the workplace. Questions were asked orally in French or in Lebanese to one parent, most often the mother, or to both parents. Administration of the questionnaire took about 15 to 20 minutes.

Results

PaBiQ: Coherence of the answers

The coherence of the answers given by the parents throughout the PaBiQ was verified via Spearman correlations between global and composite scores on various sections of the questionnaire.

Developmental history, history of language exposure and current language skills

Two variables related to developmental history, age of the first word and age of the first sentences, were significantly correlated with each other among all participants ($r_s = 0.849$; $p < 0.001$). This was also found looking at each group separately. Moreover,

as shown in Table 2, the age of the first word and the age of the first sentences were negatively correlated to the global score of current language skills in Lebanese and French.

Table 2: Correlations between developmental history variables and total scores on current language abilities ($*p < 0.05$; $**p < 0.01$; $***p < 0.001$)

Developmental history	Current language skills (Lebanese)	Current language skills (French)
Age of first word	- 0.337*	- 0.594***
Age of first sentences	- 0.394**	- 0.618***

Furthermore, variables related to the current language skills section were correlated with one another in all participants for Lebanese and French, thus showing the parents' ability to evaluate the proficiency of their children in the two languages. As shown in Table 3, strong correlations were found between the composite score of expression abilities compared to the child's peers for each language, as well as with the score of sentence production, the parents' satisfaction with the language capacities of their children, and the global score of current language skills. A significant correlation was also found between expression abilities and the evaluation of the children's frustration in Lebanese, while significance was almost reached for French.

Table 3: Correlation between variables of current language skills in Lebanese and French ($*p < 0.05$; $**p < 0.01$; $***p < 0.001$)

Expression abilities	Comparison to monolinguals	Sentence production	Satisfaction	Frustration	Global score
Lebanese	0.721***	0.564***	0.448**	0.369**	0.796***
French	0.699***	0.693***	0.703***	0.321	0.824***

Negative correlations were also found between the global score of current skills in one language and variables related to age of exposure, frequency of exposure, length of exposure and context of exposure to the language, as shown in Table 4. For Lebanese, the global score of current language abilities was correlated with length of exposure and with the global score of context of exposure, but not with age of exposure, nor with length of exposure. This can be explained by the fact that most participants started learning Lebanese from birth and had had a long-term exposure to the language. For French, the global score on current language skills was negatively correlated to all measures of exposure, except for Context of exposure.

Table 4: Correlations between composite scores of current language skills in French and Lebanese and variables related to the history of exposure to these languages (* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$)

Current language skills (global score)	Age of exposure	Frequency of exposure	Length of exposure	Context of exposure
Lebanese	0.254	- 0.619***	0.439	- 0.525**
French	- 0.608**	0.697**	0.382*	0.229

Use of languages, language richness and current language skills

Significant correlations were observed between the global score of current language skills in each language and the composite scores for use and richness. This is particularly true for French,

as shown in Table 5. The global score of current language skills in French was correlated to the use of French with the mother and siblings, as well as with the total score of use, and it was correlated with linguistic richness in French, especially with use of French during activities.

Table 5: Correlations between composites scores of current language abilities in Lebanese and French and specific variables related to language use and richness (* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$)

Current language skills (global score)	Use			Richness		
	Mother	Siblings	Total	Activities	Friends	Total
Lebanese	0.098	0.432*	0.055	0.188	0.178	0.135
French	0.598***	0.470**	0.379*	0.724***	0.266	0.604***

Information on parents and correlations with other sections of the questionnaire

As shown in table 6, the parents' proficiency level in French was highly correlated with length of exposure and context of exposure. No such correlations were found for Lebanese.

Table 6: Correlations between of level of parents in French and variables related to history of exposure (* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$)

Proficiency in French	Length of exposure	Context of exposure
Mother	0.419**	0.591***
Father	0.189	0.364**

Between-group comparisons of PaBiQ section scores

In order to understand the extent to which the PaBiQ data distinguished between Bi-TD and Bi-SLI children, between-group analyses were conducted on PaBiQ section scores and for individual questions within each section. The results are

reported in Table 7. Significant differences between the two groups emerged for each section, especially on the developmental history and early milestones and on current language skills. Comparisons between the two groups did not reveal significant differences regarding length of exposure to Lebanese since all participants had been exposed to this language from birth.

Table 7: Between-group comparisons of PaBiQ section scores

PaBiQ variable	<i>U</i>	<i>p</i>
Age of word	57.5***	< 0.0001
Age of first sentences	47***	< 0.0001
Length of exposure to Lebanese	205.5	0.102
Age of onset (French)	57.5**	< 0.01
Exchanges with mother (Lebanese)	72**	< 0.01
Score of current language skills (Lebanese)	44**	< 0.01
Score of current language skills (French)	31***	< 0.0001

PaBiQ reliability: Confronting answers to scores of standardized tools

In this section we confront parental responses to the scores of the children on the standardized tests in order to examine the reliability of the questionnaire.

Developmental history

Age of first word and first sentences were negatively correlated with all the scores of the ELO-L test, including the global score (age of first words: $r_s = -0.520$; $p < 0.01$; age of first sentences: $r_s = -0.605$; $p < 0,001$). Recall that the ELO-L tool had been standardized on the multilingual Lebanese population. Fewer

significant correlations were found between the variables of developmental history and the scores on the tests evaluating French (Table 8). This particularly applied to vocabulary measures, which yielded almost no significant correlations.

Table 8: Correlations between the variables of developmental history and the scores on French tests (* $p < 0,05$; ** $p < 0,01$; *** $p < 0,001$)

PaBiQ variable	Morphosyntactic expression	Morphosyntactic comprehension	Expressive vocabulary	Receptive vocabulary	Word repetition
Age of first word	- 0.372*	- 0.353*	- 0.347*	- 0.311	- 0.703***
Age of first sentences	- 0.367*	- 0.351*	- 0.299	- 0.246	- 0.720***

History of language exposure

Significant negative correlations were observed between all ELO-L scores and frequency of exposure to Lebanese ($r_s = -0.276$; $p < .05$) and the length of exposure to Lebanese ($r_s = -0.386$; $p < 0.01$). We did not find any significant correlations between age of exposure or context of exposure to Lebanese and ELO-L scores.

Current language skills

Significant correlations were found between the global score of current language skills in Lebanese and French and most scores of the standardized tests, as shown in Tables 9 and 10. Similarly, correlations were found between some components of the current language skills and standardized test scores. These are shown for French in Table 10.

Table 9: Correlations between current language skills in Lebanese and ELO-L scores among all participants (* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$)

	Receptive lexicon	Oral Comprehension	Lexicon in production	Word repetition	Sentence production	Global score
Current language skills global score	0.464**	0.31	0.179	0.379**	0.351*	0.334*

Table 10: Correlations between variables related to current language skills and standardized test scores in French among all participants (* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$)

PaBiQ variable	Morphosyntactic expression	Morphosyntactic comprehension	Expressive vocabulary	Receptive vocabulary	Word repetition
Expression	0.365*	0.435*	0.481**	0.382*	0.617***
Comparison monolinguals	0.542**	0.454**	0.587***	0.509**	0.714**
Sentence production	0.466**	0.493**	0.539**	0.472**	0.765***
Satisfaction	0.402*	0.475**	0.478**	0.440*	0.613***
Frustration	0.507**	0.282	0.465**	0.414*	0.348*
Total score	0.519***	0.513**	0.627***	0.566**	0.780***

Language Use and richness

We also investigated the relationship between language use and children's performance on the standardized tests. Statistical analyses did not reveal any significant correlations between the global score on the ELO-L test and the global score of language use in Lebanese. However, significant negative correlations were found between the global score of the ELO-L test and the use of Lebanese with the mother ($r_s = -0.408$; $p < 0.01$) and the father ($r_s = -0.280$; $p < 0.05$). For French we found significant positive correlations between the global score of French use and richness on the one hand, and the scores on standardized tests on the other hand (Table 11).

Table 11: Correlations between variables related to French use and richness and children's scores on standardized tests (* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$)

PaBiQ variable	Morphosyntactic expression	Morphosyntactic comprehension	Expressive vocabulary	Receptive vocabulary	Word repetition
Global score of use	0,560*	0,422*	0,635**	0,600**	0,484**
Richness	0,431*	0,389*	0,511**	0,500**	0,474**

Discussion

The objective of this study was to conduct a preliminary validation of the PaBiQ (COST Action IS0804) in the multilingual context of Lebanon, with a focus on French and Lebanese. Specifically, we collected information on bilingual Lebanese/French children, some diagnosed with SLI, some not, by asking 25 questions to their parents about their developmental history, the history of exposure to languages, language use and language abilities. This information was then confronted to the results of the participating children on standardized tests in each language. Our aim was to examine

whether the answers to the questionnaire were coherent, whether they could distinguish between the two groups of bilingual children, and whether the questionnaire could be used as an additional tool in clinical evaluation in multilingual contexts.

Statistical analyses of the questionnaire data revealed multiple correlations across different sections showing the logic and consistency of the parents' responses. For example, the developmental history variables were significantly correlated with the variables dedicated to language skills. In fact, the age of the first words and sentences produced by the children was a strong developmental predictor of language delay and appeared to be a major warning sign of language disorder [26]. In addition, parents were able to provide consistent answers related to the two languages. We found that variables related to the history of exposure to one language and to the use of this language were negatively correlated with the same variables for the other language.

In addition, analysis of the results showed that the PaBiQ data could discriminate between Bi-TD and Bi-SLI children. This applied not only to various composite scores, but also to the majority of questions when taken individually. The largest differences between the two groups were obtained on variables related to early milestones and current language skills. This confirms previous findings reported in the literature ([18], [21], [27]).

The confrontation of the questionnaire variables to the scores on standardized language tests led to a variety of significant correlations for both French and Lebanese. These correlations covered the entire population of our study, as well as each group of children (TD and SLI) taken separately. For Lebanese, we found that the sooner the children started producing their first words and sentences, the higher their scores on the ELO-L test. By contrast, we found a negative correlation between the scores on the ELO-L test and age on the one hand, and exposure to Lebanese on the other, regardless of the way the children were grouped (all children, Bi-TD children only, or Bi-SLI children only). Moreover, the relationship between the

scores on the ELO-L test and other variables, such as use of Lebanese and richness in Lebanese, was not very strong. These findings are reminiscent of attrition, a phenomenon also noted in research on bilingual children in Canada [18]. In Lebanon, children receive a lot of exposure to the L2 once they start going to school (out of 30 hours of teaching per week, 23 on average are done in the L2 [17]). This sustained exposure could have a strong (negative) influence on the retention and perfection of the L1 [28], Lebanese in the case of our study. Attrition is also described as gradual and it may even go unnoticed, as reported in previous research [29]. In addition, it is important to note that in Lebanon the L2 is highly valued as it is often associated with academic success. This situation could explain the low scores obtained by some of the Bi-TD children on the ELO-L test.

In contrast to Lebanese, no systematic correlations were observed between the age of the first words and sentences produced by the children and the scores on the standardized sub-tests for French. Moreover, the parents' evaluation of their children's language skills in French was consistent with the performance on all sub-tests in French. Similar results were reported in L2 Spanish [19]. These results held when we analyzed Bi-TD scores separately, which reflects the heterogeneity of proficiency in French, contrary to what was observed for Lebanese. No correlations were found in the Bi-SLI group, which means that the language skills of the children were fairly homogeneous (and low).

Regarding the contact with the L2, a positive correlation was found between, on the one hand, age of first exposure to French and use of French in the children's environment, and their scores on the N-EEL and BILO 3, on the other hand. These findings show the importance of age of onset and the quality and quantity of input in the L2 acquisition process. Regarding linguistic richness in the L2, which was related to the children's activities in the questionnaire, we should point out that in Lebanon most cultural and television programs for young children are in French, which can widely influence their skills in the L2. However, these latter observations apply mostly to Bi-TD children; no correlations were found between richness in

French and the scores on the standardized tests in the Bi-SLI group.

What can be concluded from the discussion on the relationship between the data from the questionnaire and the standardized language tests is that in order for the scores obtained by bilingual children in their L2 to be better interpreted, it is necessary to look at their developmental history and use of the L2 in their environment. This seriously calls into question the appropriateness of language batteries standardized on monolinguals in assessing language skills in bilingual children, which is common practice in Lebanon [8]. By contrast, greater sensitivity to language skills was observed with the ELO-L test, which was calibrated on a multilingual Lebanese population, than with the N-EEL and BILO 3. As an example of the inappropriateness of language tests standardized on monolinguals and of the way the questionnaire can shed light into the interpretation of the scores obtained by bilingual children, we focus on the case of RIR, one of the Bi-TD children. RIR's global score for the ELO-L test was slightly below average, without being pathological (-0.69); for French, the scores were very low (e.g. Morphosyntactic expression: - 2.46; Morphosyntactic comprehension: - 2.67; Vocabulary in production 1: - 4.22, and Receptive vocabulary 1: - 13.73). These very low scores could lead to the conclusion that this child was at risk of SLI, which was not confirmed by the performance on the ELO-L test. The questionnaire provides evidence suggesting that in fact RIR's proficiency in French should be higher than what the scores on the French tests seemed to indicate. In particular, the age of RIR's first words and first sentences was normal, and the answers to the questionnaire suggested that the child's environment was very favorable to L2 development.

We end this section with a discussion on the use of the PaBiQ in clinical practice. The PaBiQ could be particularly useful in contexts where direct examination of a child's L1 development is limited or impossible. For example, assessing language skills in Armenian children in Lebanon is challenging due to the lack of standardized tools in Armenian. Moreover,

Armenian-speaking SLTs are rare in Lebanon. However, it is important to stress that the PaBiQ is not a diagnosis tool, even though our results have shown that it could discriminate between Bi-TD and Bi-SLI children; rather, the PaBiQ data should be used as a complement to the information gathered through direct examination of children's language skills. In order to further examine the discriminatory power of the PaBiQ, this questionnaire should be proposed to first-coming multilingual families in Lebanon before an assessment is made and a diagnosis is reached. The PaBiQ should also be investigated with other language combinations, such as Lebanese/English.

Conclusion

In this study, we have shown that parents' answers to the PaBiQ were consistent throughout and we have confirmed the validity of the questionnaire to a large population of Bi-TD and Bi-SLI children. In addition, the study has highlighted the discriminatory power of the questionnaire with respect to SLI, in particular the questions related to developmental history and current language skills. Confrontation of PaBiQ data to scores on standardized tests in the L2 revealed the limitation of tools calibrated on monolinguals for language assessment in Lebanese bilingual children. This finding should encourage clinicians to be careful about the use of such tests and to rely on additional information for the interpretation of the scores via the parental questionnaire. In cases where direct examination of language skills is limited, the PaBiQ can become essential as a screening tool.

References

- Jakubowicz C. & Tuller L. (2008). Specific Language Impairment in French. In D. Ayoun (Ed.), *Studies in French applied linguistics* (pp. 97-134). Amsterdam: John Benjamins.
- American Psychiatric Association. (2003). *DSM-IV-TR, Manuel diagnostique et statistique des troubles mentaux* (4ème édition). Paris : Masson.
- Leonard, L. (1998). *Children with specific language impairment*. Cambridge, MA.: MIT Press.
- Rice, M. L. (2004). Growth models of developmental language disorders. In M. Rice & S. Warren (Eds.), *Developmental language disorders: From phenotype to etiologies* (pp. 203- 234). Mahwah, NJ : Erlbaum.
- Bedore, L.M., Peña, E.D., Gillam R. B. & Ho T. (2010). Language sample measures and language ability in Spanish-English bilingual kindergarteners, *Journal of Communication Disorders*, 43, 498-510.
- Paradis, J., Crago, M. & BÉlanger, C. (2005). Le développement langagier bilingue chez les enfants : incidence sur l'évaluation du trouble primaire du langage. *Fréquences*, 17(3), 27-30.
- Paradis, J. (2010). The interface between bilingual development and specific language impairment. *Applied psycholinguistics*, 31, 227-252.
- Restrepo, M.A & Silverman, S.W. (2001). Validity of the use of Spanish Preschool Language Scale-3 for use with bilingual children. *American Journal of Speech-Language Pathology*, 10, 382-393.
- De Jong, J., Çavuş, N. & Baker, A. (2010). *Language impairment in Turkish-Dutch bilingual children*. In S Topbaş & M Yavaş (Eds.), *Communication disorders in Turkish* (pp. 290-302). Bristol: Multilingual Matters.

- Grüter, T. (2005). Comprehension and production of French object clitics by child second language learners and children with specific language impairment. *Applied Psycholinguistics*, 26, 363-391.
- Paradis, J., Crago, M., Genesee, F. & Rice, M. (2003). Bilingual children with specific language impairment: How do they compare with their monolingual peers? *Journal of Speech, Language and Hearing Research*, 46, 1-15.
- Bedore, L.M. & Peña, E.D. (2008). Assessment of Bilingual Children for identification of Language Impairment: Current Findings and Implications for Practice. *International Journal of Bilingual Education and Bilingualism*, 11(1), 1-29.
- Thordardottir, E., Rothenberg A., Rivard, M.E. & Naves, R. (2006). Bilingual Assessment: Can overall proficiency be estimated from separate measurement of two languages? *Journal of Multilingual Communication Disorders*, 4 (1), 1-21.
- Abou, S.J. (1962). *Le bilinguisme arabe-français au Liban. Essai d'anthropologie culturelle*. Paris: Presses Universitaires de France.
- Haddad K. (1997). Anatomie de la francophonie libanaise ou les visages linguistiques du Liban. Espace, populations, sociétés (1). *Les populations du monde arabe - People of the Arab Middle East*, 65-72.
- Trésor de la langue française au Québec (2010). *Jumhuriyah al Lubnaniy*. [En ligne]. <http://www.tfq.ulaval.ca/axl/asia/liban.htm>.
- Shaaban, K. A. (1997). Bilingual Education in Lebanon. In J Cummins & D Corson (Eds.), *Encyclopedia of language and education* 5 (pp.251-259). Dordrecht: Kluwer.

- Paradis J., Emmerzael K., Sorenson Duncan T. (2010). Assessment of English language learners: using parents report on first language development. *Journal of Communication disorders*, 43, 474-497.
- Restrepo, M. A. (1998). Identifiers of predominantly Spanish-speaking children with language impairment. *Journal of Speech, Language and Hearing Research*, 41, 1398-1411.
- Tuller, L., Prevost, P., Zebib, R. & Moitel Messarra, M. (2011). Beirut-Tours Questionnaire, COST Action, IS0804.
- Abou Melhem, N. (2011). *Plurilinguisme et trouble spécifique du langage: pertinence du questionnaire parental au Liban*. MA Thesis, Université François Rabelais, Tours, France.
- Zebib R., Messarra C., Henry G., Kouba-Hreich E., Attié-Khayat Z. & Dahdah L. (in preparation). *Evaluation du langage oral libanais (ELO-L)*.
- Khomsî, A. (2001). *Évaluation du Langage Oral (ELO)*. Paris : Les Editions du Centre de Psychologie Appliquée (ECPA).
- Chevrie-Muller C., Plaza M. (2001), *Nouvelles Epreuves pour l'Examen du Langage, N-EEL*. Paris : Les Editions du Centre de Psychologie Appliquée (ECPA).
- Khomsî, A., Khomsî, J., Pasquet, F., Parbeau- Gueno, A. (2007), *Bilans Informatisés du Langage Oral 3, BILO 3*. Paris : Les Editions du Centre de Psychologie Appliquée (ECPA)
- Parisse, C. & Maillart, C. (2004). Développement morphosyntaxique des enfants ayant des troubles de développement du langage: des données francophones. *Enfances*, 56 (1), 21-35.

- Noël A. (2011). *Evaluation de l'enfant bilingue français – créole réunionnais : intérêt et pertinence d'un questionnaire parental*. MA Thesis, Univ. Francois Rabelais, Tours, France.
- Köpke, B. & Schmid, M. S. (2004). First language attrition: The next phase. In M. S. Schmid, B. Köpke, M Keijzer, M. & L. Weilemar (Eds.), *First language attrition: Interdisciplinary perspectives on methodological issues* (pp. 1-43). Amsterdam: John Benjamins.
- Paradis J. (2007). Bilingual children with specific language impairment: theoretical and applied issues. *Applied psycholinguistics*, 28, 551-564.