LUI-French (Canada): Guide for Users

Thank you for your interest in the LUI-French (Canada), the French-Canadian version of the Language Use Inventory. This guide provides important information about the tool, its clinical application, and its scoring. If you have any questions after reading this information, please contact Diane Pesco, Speech-Language Pathologist and Associate Professor in the Department of Education at Concordia University in Quebec (e-mail diane.pesco@concordia.ca) or Daniela O'Neill , author of the original LUI and Professor in Psychology (Developmental Division) at the University of Waterloo, Ontario.

General information

The LUI, a standardized questionnaire for parents, was developed in English and normed on over 3500 children with English as a mother tongue. Now adapted to French and several other languages, the LUI is:

- designed to assess how children 18 to 47 months old use language in social contexts
- based on research on the development of language and social cognition
- reliable and valid
- easy to complete and use

Use of the LUI-French (Canada) in clinical practice

In clinical practice, the LUI can be used to:

- identify social communication difficulties which are central to the DSM-V definition of social communication disorders; widespread in children with autism spectrum disorders; and sometimes observed in children with language delays, behavioural problems, or significant hearing loss
- complement vocabulary and grammatical measures in screening for expressive language delays
- gather information to establish intervention objectives
- monitor language development, over time or as a consequence of intervention

Adaptation of the original LUI to French

An article published in the *Canadian Journal of Speech, Language, and Audiology* (Pesco & O'Neill, 2016) describes how we adapted the LUI-French (Canada) from the original, drawing on feedback about the instructions and items from francophone translators, parents, and speech-language pathologists. The article also (a) provides data on the reliability and developmental sensitivity of the LUI-French (Canada), based on data from 242 children and (b) describes modifications to the LUI-French (Canada) to accommodate linguistic differences between French and English, resulting in a net difference of just 2 points to the total score.

Structure and content of the LUI-French (Canada)

The LUI-French (Canada) is structured just like the original LUI. There are 14 subscales covering the child's: (A) gestures to ask for something; (B) gestures to get others to notice something; (C) types of words; (D) requests for help; (E) interests; (F) words to get others to notice things; (G) questions and comments about things; (H) questions and comments about themselves, and about other people (scored separately and jointly); (I) use of words in the context of play/activities with others; (J) teasing and sense of humour; (K) interest in words and language; (L) interests when talking; (M) adaptations of conversation to other people; and (N) longer sentences and stories.

The total score is derived from 10 subscales: C, D, F to K, M, and N. The two subscales related to children's

gestures (A and B) are not included in the total score to maintain a focus on language (and because gestures tend to decrease as children acquire language), but scores on the gesture subscales can still be calculated. The two subscales focused on children's interests (E and L) ask parents for qualitative information, and are not scored.

Instructions for administering the LUI and for parents (frequently asked questions)

How long does it take a parent to complete the LUI-French (Canada)?
It takes parents approximately 25-30 minutes to complete the questionnaire (completion for very young children often takes less time). Many parents in our studies reported that they enjoyed completing the questionnaire and reflecting on their child's knowledge and skills.

Can parents fill the LUI-French (Canada) online?
For now, we are distributing only a print copy to speech-language pathologists. In order to discourage wide circulation, we recommend that you provide a print copy to parents (i.e., avoid providing the questionnaire to parents via email).

What instructions should I give to parents?
The instructions for the parent are included on the questionnaire. We recommend that you review these before giving the questionnaire to a parent. As the instructions state, we recommend that parents complete the questions on a single day (if necessary, within a maximum of two days).

Can I read the questions to the parent(s) instead of asking them to fill it at home?
Yes, you can administer the questionnaire orally. If you do this, it is important to read the examples (i.e., the examples of what children might say) as well as the questions, since parents find these helpful. If the parent is literate, we advise you to let the parent read the examples silently, so that they can reflect on their child's behaviour rather than focus on recalling all that you've read.

Scoring and interpreting results

How should I score the LUI-French (Canada)?
All of the instructions for scoring are included on the LUI-French (Canada) scoresheet, available from the download menu. Since most of the questions ask parents for a simple 'yes' or 'no', the scoring is simple: yes responses, as well as responses of 'sometimes' or 'often' (on the rare questions that request a frequency rating), receive 1 point. The points are then summed to obtain a total score.

How should I interpret the results?
So far, we have collected data for children 18, 24, 30, 36, 42, or 47 months old (in the future, we will collect data for other ages within the 18-47 months period). Based on the data, we have calculated the means for the LUI-French (Canada) Total Score and its subscales. The means for each age group are provided separately for boys and girls, given that girls had significantly higher scores than boys at the youngest ages. See Tables 1 and 2 for the means, standard deviations, and scores that are 1, 1.5, and 2 standard deviations below the mean, for the Total Score and the two parts comprising the score. For the means and standard deviations by subscale (divided by age group and sex), see the appended tables.

Tables 1 and 2 are followed by an example of how to interpret the scores. Keep in mind that:
- the standard deviation measures the dispersion of scores around the mean
- the greater the dispersion, the larger the standard deviation
- a score 2 standard deviations below the mean is necessarily further from the mean than one that is 1 or 1.5 below the mean

Table 1. LUI-French (Canada) Total Score: Children from 18 to 30 months old							
Age in months	Sex and Number of Participants	Score	Mean	Standard Deviation	Score by number of standard deviations below the mean		
					-2	-1.5	-1
18	girls (n = 16)	Total	44.38	19.27	5.84	15.47	25.11
		Part 2	19.44	2.99	13.46	14.96	16.45
		Part 3	24.94	16.94	n/a	0.00	8.00
	boys (n = 15)	Total	18.87	9.22	0.43	5.04	9.65
		Part 2	12.07	4.99	2.08	4.58	7.07
		Part 3	6.80	5.47	n/a	-1.40[1]	1.33[1]
24	girls (n = 25)	Total	89.84	28.77	32.31	46.69	61.07
		Part 2	26.48	3.29	19.89	21.54	23.19
		Part 3	63.36	25.91	11.54	24.50	37.45
	boys (n = 29)	Total	75.52	24.33	26.86	39.02	51.19
		Part 2	25.03	4.14	16.75	18.82	20.89
		Part 3	50.48	21.16	8.17	18.74	29.32
30	girls (n = 21)	Total	124.10	20.76	82.58	92.96	103.34
		Part 2	29.10	1.45	n/a[2]	26.93[2]	n/a[2]
		Part 3	95.00	19.68	55.65	65.48	75.32
	boys (n = 19)	Total	106.16	23.02	60.12	71.63	83.14
		Part 2	27.68	3.30	21.08	22.73	24.38
		Part 3	78.47	21.01	36.45	46.96	57.46

[1] A score of 0 or 1 can be described as "1 standard deviation below the mean".

[2] At 30 months, girls' scores on Part 2 were high and varied little. As a result, the scores 2, 1.5, and 1 standard deviation below the mean varied only by a fraction of a point. While such scores are useful in a research context (since we are interested in mean scores), they are not useful in clinical practice. We have thus chosen to provide only the value that corresponds to a score 1.5 standard deviations below the mean.

Age in months	Sex and Number of Participants	Score	Mean	Standard Deviation	Score by number of standard deviations below the mean		
					-2	-1.5	-1
36[1]	girls (n = 25)	Total	139.20	16.83	105.54	113.96	122.37
		Part 2	29.68	0.69	--	28.64[2]	--
		Part 3	109.52	16.30	76.92	85.07	93.22
	boys (n = 26)	Total	131.35	13.00	105.34	111.84	118.34
		Part 2	29.54	0.81	--	28.32[2]	--
		Part 3	101.81	12.66	76.49	82.82	89.15
42	girls (n = 15)	Total	138.27	16.99	104.29	112.78	121.28
		Part 2	29.53	0.64	--	28.57[2]	--
		Part 3	108.73	16.64	75.46	83.78	92.10
	boys (n = 20)	Total	142.20	16.98	108.23	116.72	125.22
		Part 2	29.85	0.49	--	29.12[2]	--
		Part 3	112.35	16.65	79.06	87.38	95.70
47	girls (n = 15)	Total	150.33	8.88	132.58	137.02	141.46
		Part 2	29.87	0.52	--	29.09[2]	--
		Part 3	120.47	8.71	103.05	107.40	111.76
	boys (n = 16)	Total	152.31	6.35	139.61	142.78	145.96
		Part 2	30.00	0.00	n/a[3]	n/a[3]	n/a[3]
		Part 3	122.31	6.35	109.61	112.78	115.96

Table 2. LUI-French (Canada) Total Score: Children from 36 to 47 months old

[1] In an independent study of 36 month-olds, researchers found very similar results but less pronounced differences between girls and boys: girls (n = 50), Mean = 134.90, Standard Deviation = 14.95; boys (n = 44), Mean = 133.07, Standard Deviation = 15.16. The values associated with each standard deviation were also within 1-3 points of those provided here.

[2] From 36 to 47 months, children's scores on Part 2 were high and varied little. As a result, the scores 2, 1.5, and 1 standard deviations below the mean varied only by a fraction of a point. While such scores are useful in a research context (since we are interested in mean scores), they are not useful in clinical practice. We have thus provided only the value that corresponds to a score 1.5 standard deviations below the mean.

[3] At 47 months, boys in this sample all received maximum scores on Part 2. Consequently, the standard deviation was 0 and the values in relation to the standard deviation were not calculable. A score below 30 in these cases can be described only as "below the mean".

How to interpret the results: an example
Here, we provide an example of how to interpret a score using Table 1. For an 18-month-old girl (see the first row), a total score of 5 is more than 2 standard deviations below the mean; a score of 6 to 15 is between 1.5 and 2 standard deviations below the mean; a score of 16 to 25 is between 1.5 and 1 standard deviations below the mean, and a score of 26 to 44 is less than a standard deviation below the mean of 44.38.

Can I convert scores in tables to percentile ranks?
Percentile ranks are not yet available for the LUI-French (Canada) (but they are available for the original LUI in English). Since the samples by age group are still relatively small, we will wait for the norming phase of our research to verify that the scores follow a normal curve, a prerequisite for converting scores into percentile ranks.

How should I deal with scores of children of an age not shown in Tables 1 and 2?
Speech-language pathologists should not apply the scores shown in Tables 1 and 2 to children of other ages. For example, a 22-month-old child's scores should not be compared to the means provided for 24-month-olds. We do not expect scores to be stable between the ages studied, as in the original version of LUI, the scores rose every month between 18 and 47 months. On the other hand, the LUI-French (Canada) could be used to describe the language of a child of any age.

Are the scores in Tables 1 and 2 based on the scores of children diagnosed with language disorders or pragmatic difficulties?
No, the cut-off scores are based on a sample of 242 children who had the following characteristics:

- spoke French and were exposed to French at least 80% of the time since birth
- resided within Canada (largely in the province of Quebec)
- had *not* been diagnosed with a language delay or disorder, intellectual impairment, developmental delay, autism spectrum disorder, or other medical condition affecting language (however, if the parent only suspected any of these problems, the child was included)
- were born at term or within two weeks of term and weighed at least 5 lbs, 5 oz.

Thus, the scores were from French-speaking children in the general population, including children whose parents might have been concerned about their child's development.

How to interpret children's scores on parts and subscales?
Tables in the Appendix provide mean for the scores subscales for boys and girls. Since the subscales follow a developmental order, a child might score above the mean on one subscale, but below the mean on another more advanced subscale. Scores on subscales A and B (which deal with gestures) are not included in the total score and are thus excluded from the tables.

Appendix: Mean scores on scored subscales by child's age and sex

See page 1 of this guide for the subscale names

Girls 18 months (n = 16)		
Subscale (by Part)	Mean	Standard Deviation
Part 2		
C	14.13	2.58
D	5.31	0.95
Part 3		
F	3.00	1.15
G	3.38	2.28
H	7.44	7.09
H : about self	3.31	3.48
H : about others	2.81	2.51
I	3.19	2.86
J	0.88	0.81
K	4.00	2.39
M	2.31	2.18
N	0.75	1.24

Boys 18 months (n = 15)		
Subscale (by Part)	Mean	Standard Deviation
Part 2		
C	8.60	4.45
D	3.47	1.41
Part 3		
F	1.40	1.18
G	0.87	1.25
H	1.53	2.64
H : about self	0.73	1.83
H : about others	0.40	0.74
I	0.87	1.19
J	0.53	0.64
K	1.27	1.33
M	0.13	0.35
N	0.20	0.41

Girls 24 months (n = 25)		
Subscale (by Part)	Mean	Standard Deviation
Part 2		
C	19.88	2.86
D	6.60	0.71
Part 3		
F	4.60	1.08
G	6.52	1.87
H	20.64	8.99
H : about self	10.08	4.07
H : about others	7.32	4.66
I	9.00	3.19
J	1.52	1.19
K	6.36	2.38
M	7.08	3.82
N	7.64	8.21

Boys 24 months (n = 29)		
Subscale (by Part)	Mean	Standard Deviation
Part 2		
C	19.28	3.25
D	5.76	1.41
Part 3		
F	4.07	0.88
G	6.17	1.83
H	16.14	8.60
H : about self	7.83	4.28
H : about others	5.52	3.73
I	7.00	2.60
J	1.21	1.21
K	5.48	1.79
M	5.69	2.94
N	4.72	4.68

Girls 30 months (n = 21)		
Subscale (by Part)	Mean	Standard Deviation
Part 2		
C	22.24	1.30
D	6.86	0.36
Part 3		
F	5.24	0.62
G	8.48	0.93
H	30.43	5.38
H : about self	13.14	1.31
H : about others	13.52	4.20
I	11.38	2.27
J	2.67	1.39
K	8.62	1.60
M	10.90	3.02
N	17.29	8.28

Boys 30 months (n = 19)		
Subscale (by Part)	Mean	Standard Deviation
Part 2		
C	21.32	2.16
D	6.37	1.61
Part 3		
F	4.74	0.73
G	7.63	1.38
H	26.26	6.33
H : about self	11.68	2.47
H : about others	10.84	3.93
I	10.11	2.62
J	2.37	1.67
K	7.32	1.95
M	8.68	3.09
N	11.37	7.43

Girls 36 months (n = 25)		
Subscale (by Part)	Mean	Standard Deviation
Part 2		
C	22.76	0.52
D	6.92	0.28
Part 3		
F	5.48	0.51
G	8.76	0.72
H	33.48	4.33
H : about self	13.72	0.89
H : about others	15.92	3.25
I	12.76	1.96
J	3.52	1.26
K	10.12	1.42
M	12.48	2.20
N	22.92	6.49

Boys 36 months (n = 26)		
Subscale (by Part)	Mean	Standard Deviation
Part 2		
C	22.69	0.74
D	6.85	0.46
Part 3		
F	5.62	0.50
G	8.77	0.71
H	32.12	3.05
H : about self	13.88	0.43
H : about others	14.35	2.92
I	11.92	1.92
J	2.92	1.23
K	9.19	1.44
M	11.38	2.32
N	19.88	5.63

Girls 42 months (n = 15)		
Subscale (by Part)	Mean	Standard Deviation
Part 2		
C	22.67	0.49
D	6.87	0.35
Part 3		
F	5.60	0.51
G	8.60	0.91
H	32.00	5.07
H : about self	13.47	1.13
H : about others	14.60	4.15
I	12.33	1.91
J	3.53	1.25
K	9.67	1.88
M	12.87	1.92
N	24.13	6.02

Boys 42 months (n = 20)		
Subscale (by Part)	Mean	Standard Deviation
Part 2		
C	22.85	0.49
D	7.00	0.00
Part 3		
F	5.65	0.59
G	8.85	0.49
H	32.75	4.95
H : about self	13.40	1.57
H : about others	15.50	3.36
I	12.60	2.14
J	4.05	1.23
K	9.95	2.21
M	13.05	2.58
N	25.45	4.86

Girls 47 months (n = 15)		
Subscale (by Part)	Mean	Standard Deviation
Part 2		
C	23.00	0.00
D	6.87	0.52
Part 3		
F	6.00	0.00
G	8.73	1.03
H	35.53	1.06
H : about self	13.80	0.56
H : about others	17.73	0.59
I	13.27	1.28
J	3.80	1.78
K	11.00	1.25
M	14.33	1.35
N	27.80	3.14

Boys 47 months (n = 16)		
Subscale (by Part)	Mean	Standard Deviation
Part 2		
C	23.00	0.00
D	7.00	0.00
Part 3		
F	5.94	0.25
G	9.00	0.00
H	35.81	0.54
H : about self	14.00	0.00
H : about others	17.81	0.54
I	13.56	1.09
J	4.63	0.81
K	11.06	1.57
M	14.38	1.09
N	27.94	2.89