

LUI-Polish (Poland)* : scoring and score interpretation instructions

Thank you for your interest in the LUI-Polish (Poland), the Polish adaptation of the Language Use Inventory. This guide provides important information about the tool, its clinical application, and its scoring.

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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 Polish 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-Polish in clinical practice

In clinical practice, the LUI-Polish can be used to:

- monitor language development, over time or as a consequence of intervention
- gather information to establish intervention objectives
- complement vocabulary and grammatical measures in screening for potential expressive language delays
- identify (with caution!) potential 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.
Note: LUI-Polish has not yet used with these atypical population in Poland but original LUI was proved as valid and reliable tool to use with these populations.

Adaptation of the original LUI to Polish

An article published in the *Journal of Speech, Language, and Hearing Research* (Białecka-Pikul, Filip, Stępień-Nycz, Kuś, & O'Neill, 2019) describes how we adapted the LUI-Polish from the original. Namely, we tried to integrate translation of the tool with its sociocultural and functional adaptation. Therefore, we focused not on direct translation. For example, the short English word help is, in Polish, the very long word 'ratunku'. Thus, 2-year-olds frequently use its abbreviated form 'tunku', and so we allowed parents to credit their children with the use of 'ratunku' even when only the abbreviated form was used. The content, semantic, and syntactic modifications we ultimately introduced in the LUI-Polish reflected this focus on pragmatics. Moreover, we followed back translations procedure as well as reconsidered our decisions about the items with the group of speech-language specialists as well as with the author of the original tool. The article also (a) provides data on the reliability and developmental sensitivity of the LUI-Polish, based on data from children and (b) describes in detail all modifications to the LUI-Polish which aimed at accommodating linguistic differences between Polish and English. Importantly, the LUI-Polish and the LUI-English both have the same number of items resulting in total scores that do not differ.

Structure and content of the LUI-Polish

* Polish adaptation of the Language Use Inventory (LUI; O'Neill, 2009) by: Białecka-Pikul, M., Duda, K., Kuś, K. & O'Neill, D. (2018).

The LUI-Polish is structured just like the original LUI. There are 3 parts (I. Gestures; II. Words; III. Longer sentences) and 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 LUI-Polish Total Score is derived from 10 subscales: C, D, F to K, M, and N, just as for the LUI-English. 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 that focus 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-Polish?

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-Polish online?

The LUI-Polish currently exists in only as a printable pdf. It is being made available solely to researchers and professionals (e.g., clinicians, speech-language pathologists). Those who administer the LUI-Polish should provide parents with a print copy and not circulate the pdf electronically 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-Polish?

All of the instructions for scoring are included on the LUI-Polish Score Sheet, available from the download menu. Since most of the questions comprising the LUI-Polish Total Score 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 (see the LUI-Polish Score Sheet for detailed instructions). The points are then summed to obtain a total score.

How should I interpret the results?

So far, we have collected data for children 20, 32, and 44 months of age (in the future, we aim to collect data at other ages within the period of 18 to 47 months). Based on current data, we have calculated the means for the LUI-Polish Total Score and its subscales at 20, 32, and 44 months. 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. In

Table 1, the means, standard deviations, and scores that are 1, 1.5, and 2 standard deviations below the mean, are presented for the Total Score and the two parts comprising the Total Score score (for each of the three age groups and for boys and girls). The 3 sets of tables in the Appendix present these means and standard deviations separately by subscale (for each of the three age groups and for boys and girls). Please be aware that scores of children beyond the ages for which the means are provided should not be interpreted, as developmental differences are expected at every age month, based on the original version of LUI.

Table 1 is 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 a score that is 1 or 1.5 standard deviations below the mean

Table 1. LUI-Polish Total Score: Children from 20 to 44 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
20	girls (n = 115)	Total	48.29	26.71	n/a ¹	8.23	21.58
		Part 2	18.58	5.69	7.2	10.05	12.89
		Part 3	29.41	22.45	n/a ¹	n/a ¹	6.96
	boys (n = 129)	Total	39.59	24.46	n/a ¹	2.9	15.13
		Part 2	15.85	6.45	2.95	6.18	9.4
		Part 3	23.23	20.89	n/a ¹	n/a ¹	2.34
32	girls (n = 110)	Total	125.19	26.70	71.79	85.14	98.49
		Part 2	25.20	1.81	21.58	22.49	23.39
		Part 3	99.99	25.56	48.87	61.65	74.43
	boys (n = 146)	Total	114.34	31.89	50.56	66.51	82.45
		Part 2	24.51	2.98	18.55	20.04	21.53
		Part 3	88.84	29.78	29.28	44.17	59.06
44	girls (n = 97)	Total	146.89	11.82	123.25	129.16	135.07
		Part 2	25.39	1.17	n/a ²	23.64	24.22
		Part 3	121.49	11.26	98.97	104.60	110.23
	boys (n = 121)	Total	143.25	14.63	113.99	121.31	128.62
		Part 2	25.42	1.20	n/a ²	23.62	24.22
		Part 3	117.83	14.27	89.29	96.43	103.56

¹ A score less than 0. The result can be described only in terms of the nearest value (of -1.5 SD or -1 SD). For example, for 20-month girls, a Total Score of 8 points or less can be described as “a 1.5 standard deviation”.

² At 44 months, children's scores on Part 2 were high and varied little. As a result, the scores at a -2 and -1.5 standard deviation 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 values that correspond to scores -1 and -1.5 standard deviations 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 a 32-month-old girl (see the seventh row), a total score of 71 is more than -2 standard deviations below the mean; a score of 72 to 85 is between -1.5 and -2 standard deviations below the mean; a score of 86 to 98 is between -1.5 and -1 standard deviations below the mean, and a score of 99 to 125 is less than -1 standard deviation below the mean of 125.19 (i.e, between 0 and -1 standard deviations).

Can I convert scores in tables to percentile ranks?

Percentile ranks are not yet available for the LUI-Polish (but they are available for the original LUI in English). Although the samples of the current age groups are large enough for norming purposes at these ages, we do not yet have more fine-grained data for children in intervening month intervals. Thus we will wait until the norming phase of our research is completed to conduct the appropriate analyses and be able to provide the relevant percentile ranks for raw scores, also for children of other ages between 18 and 47 months.

How should I deal with scores of children of an age not shown in Tables 1?

Users administering the LUI-Polish with parents should not apply the scores shown in Table 1 to children of other ages. For example, an 18-month-old child's scores should **not be compared** to the means provided for 20-month-olds. We do not expect scores to be stable between the ages studied, given results of the LUI-English and other translations of the LUI in which scores often show a rise between these ages, i.e. between 18 and 47 months. For the moment, the scores of children differing in age from 20-, 32- and 44-month-olds should **not be interpreted** in LUI-Polish. It is however possible to obtain their scores in order to describe their pragmatic competence, keeping in mind that the score should not be compared to the norms for a given age.

Are the scores in Tables 1 based on the scores of children diagnosed with language disorders or pragmatic difficulties?

No, the cut-off scores are based on a sample of typically developing children (244, 256 and 218 at ages 20, 32 and 44, respectively) who had the following characteristics:

- spoke Polish and were exposed to Polish since birth (88.5% of the group at the time of the first assessment were exposed only to Polish; the time of exposure to other languages in the remaining 11.5% of the group varied from 10% to 100% at the time of the first assessment)
- resided within Poland (the children were mostly from a large city environment, i.e., Krakow:71%–75% of the group)
- their parents were generally well educated (76% of parents had a university degree level education)
- children had *not* been diagnosed with a language delay or disorder, intellectual impairment, developmental delay, autism spectrum disorder, or other medical condition affecting language (although in case of one child, the parents have reported some problems with hearing)
- most children were born at term or within two weeks of term (93% of the group; the remaining children were born between 25th and 37th week of pregnancy) and weighed at least 2500 gram (full-term children).

Importantly, please keep in mind that similar to most standardized language tests, the presented LUI's-Polish means and standard deviations for 20, 32 and 44 months olds (not yet norms!) are based on a sample of typically-developing children. We are aware that in general practice one may use such data based on typically-developing

children with children who have already received a diagnosis in order, for example, to, determine areas of weakness and strength, develop treatment goals, implement therapy, and evaluate progress in intervention. It just means, for example, that if you were interpreting the LUI score to assess the progress of a 44-month-old child with autism spectrum disorder who had been in intervention for 4 months, with the 44-month-old results against which this child's performance would be compared would include typically-developing children.

How to interpret children's scores on parts and subscales?

The Tables in the Appendix provide the means for the scores for the subscales comprising the LUI Total Score for boys and girls. Since the subscales follow roughly a chronological 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 concern 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 20 months (n = 115)		
Subscale (by Part)	Mean	Standard Deviation
Part 2		
C	13.14	4.34
D	5.54	1.64
Part 3		
F	3.52	1.57
G	2.92	2.39
H	9.46	8.45
H : about self	4.47	4.13
H : about others	4.60	4.60
I	4.81	3.53
J	0.41	0.66
K	3.26	2.19
M	2.54	3.07
N	2.49	4.02

Boys 20 months (n = 129)		
Subscale (by Part)	Mean	Standard Deviation
Part 2		
C	10.97	4.88
D	4.96	2.03
Part 3		
F	3.05	1.66
G	2.23	2.29
H	6.68	6.37
H : about self	3.17	3.34
H : about others	3.09	3.31
I	4.09	3.42
J	0.44	0.68
K	2.77	2.10
M	2.33	2.73
N	1.69	3.23

Girls 32 months (n = 110)		
Subscale (by Part)	Mean	Standard Deviation
Part 2		
C	18.55	1.24
D	6.65	0.79
Part 3		
F	5.61	0.85
G	8.03	1.83
H	30.05	7.05
H : about self	12.85	2.48
H : about others	17.19	4.94
I	11.73	2.65
J	1.82	1.40
K	8.33	2.31
M	11.05	3.31
N	23.38	9.64

Girls 44 months (n = 97)		
Subscale (by Part)	Mean	Standard Deviation
Part 2		
C	18.89	0.56
D	6.51	0.88
Part 3		
F	5.85	0.39
G	8.89	0.41
H	35.04	2.14
H : about self	13.91	0.38
H : about others	21.13	1.93
I	13.25	1.18
J	2.61	1.43
K	10.37	1.49
M	13.39	2.10
N	32.10	5.36

Boys 32 months (n = 146)		
Subscale (by Part)	Mean	Standard Deviation
Part 2		
C	17.88	2.43
D	6.63	0.85
Part 3		
F	5.34	1.01
G	7.68	2.01
H	27.08	8.48
H : about self	11.90	3.12
H : about others	15.18	5.72
I	10.82	3.13
J	1.61	1.25
K	7.73	2.68
M	10.07	3.62
N	19.51	11.09

Boys 44 months (n = 121)		
Subscale (by Part)	Mean	Standard Deviation
Part 2		
C	18.92	0.36
D	6.50	1.13
Part 3		
F	5.89	0.31
G	8.76	0.68
H	34.09	3.30
H : about self	13.84	0.53
H : about others	20.25	2.97
I	12.99	1.65
J	2.87	1.28
K	9.83	1.71
M	12.85	2.50
N	30.54	6.28