

# Child characteristics related to improvement in language performance of children with DLD of 4-6 years

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## Introduction

There is a paucity of information on the effects of special education provisions on the language skills of children with DLD. Specifically, it is unclear

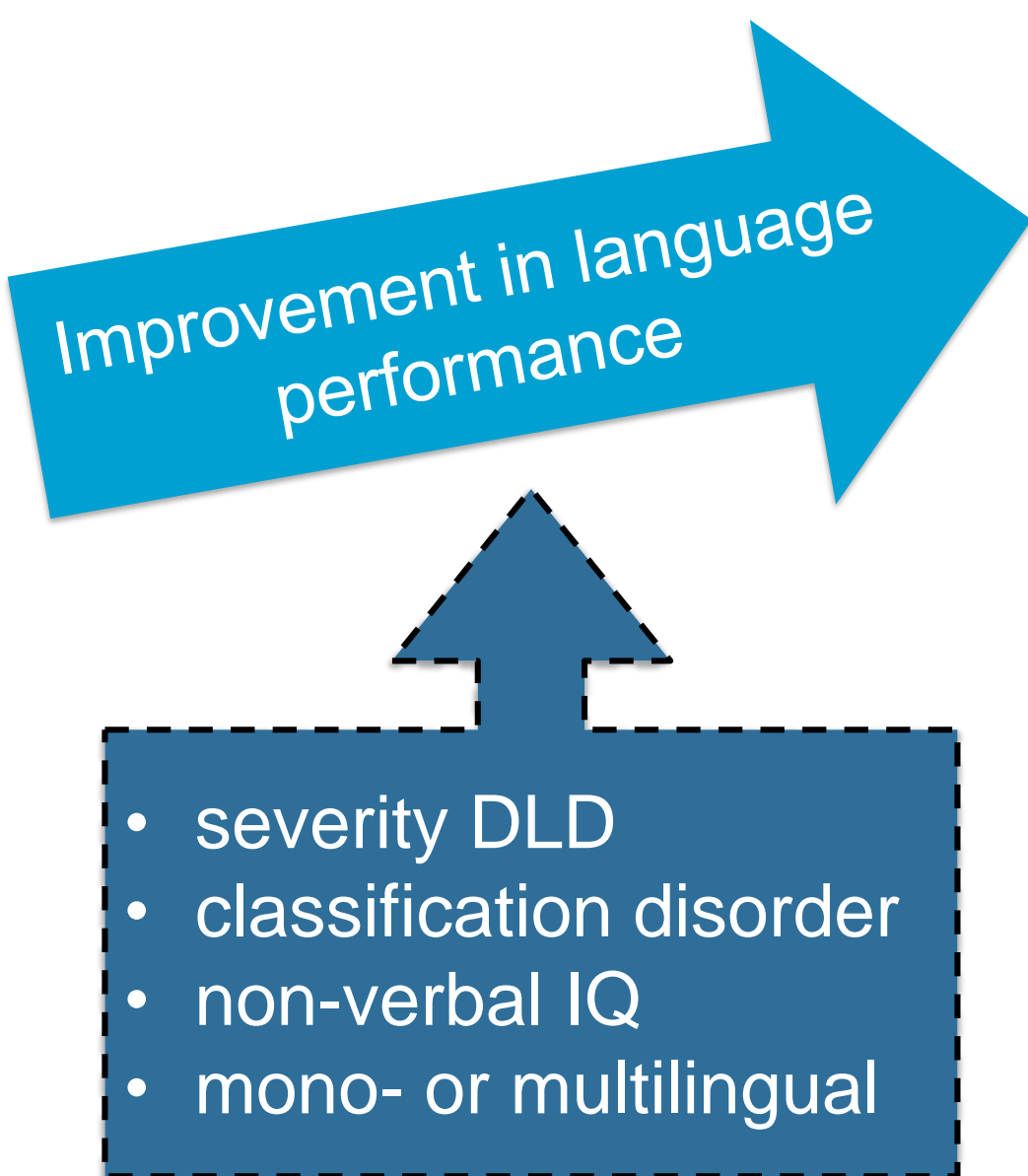
1. if (and how) school-based intervention impacts various language domains
2. to what extent child characteristics modulate outcomes

## Method

We traced the trajectory of 154 children with DLD at 18 schools for special education that provide systematic language-oriented interventions.

Mean age 4;10 at the start of the study; range 3;11 – 5;7 yrs

T0 = start schoolyear  
T1 = end schoolyear



Children with DLD in special education show improvement in language performance.

No differences in improvement between:

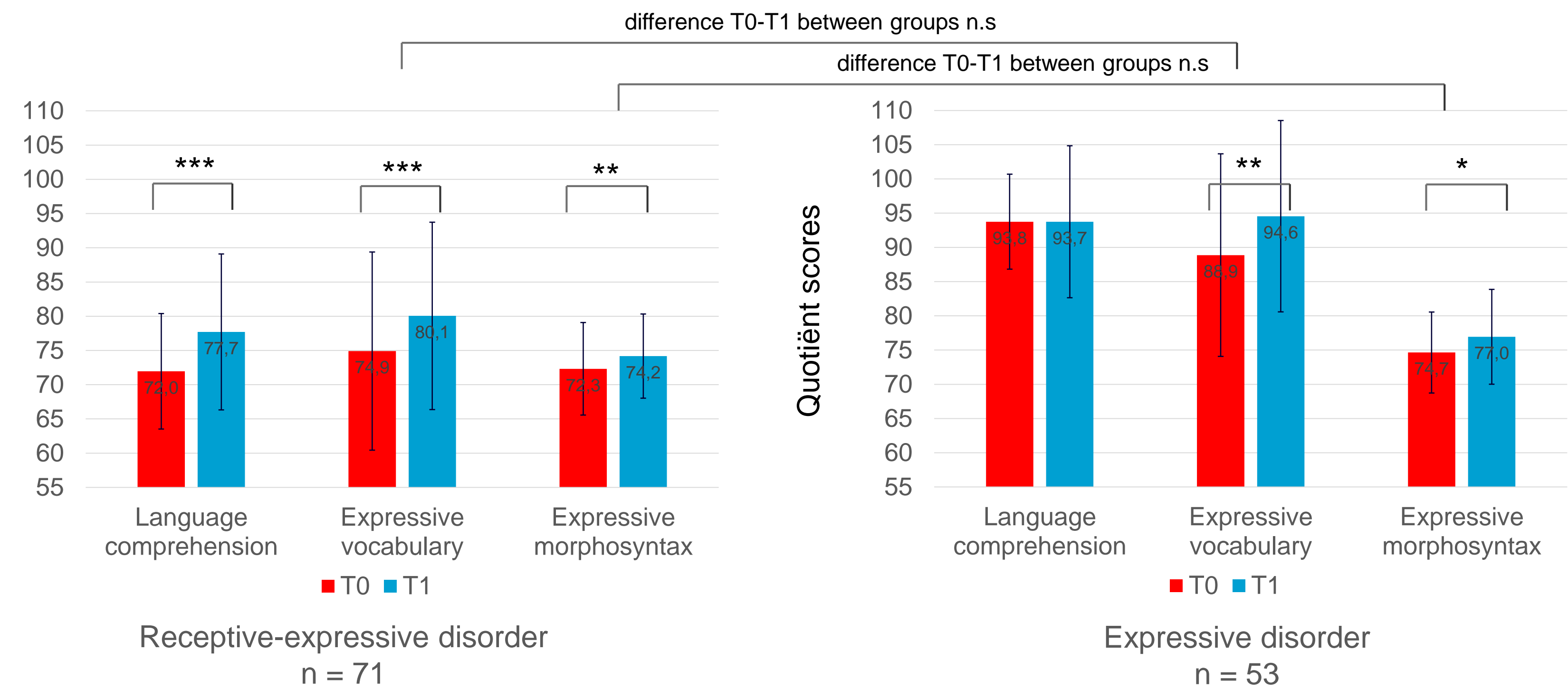
- Children with receptive-expressive disorders and expressive disorders
- Children with low and high IQs
- Mono- and multilingual children

Intervention is important for all children with DLD.

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## Results

Scores on standardized tests for different language domains of children with receptive-expressive disorders and expressive disorders



Correlations of improvement (difference scores between T0 and T1) with non-verbal IQ and severity of the disorder (scores at T0)

		LC T1-T0	EV T1-T0	EM T1-T0
Nonverbal IQ	Pearson Correlation	0.042	0.058	0.061
	N	126	130	127
LC T0	Pearson Correlation	<b>-.317***</b>	0.055	0.035
	N	130	128	126
EV T0	Pearson Correlation	0.094	<b>-.420***</b>	0.002
	N	129	134	130
EM T0	Pearson Correlation	0.087	-0.098	<b>-.446***</b>
	N	127	130	131

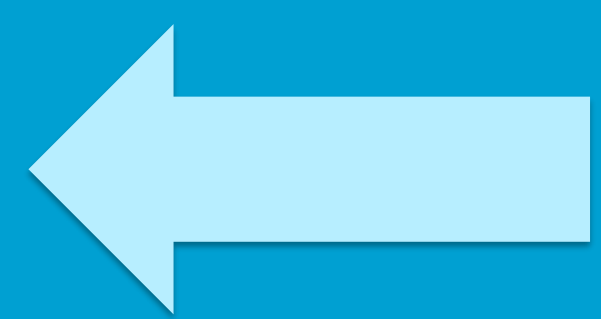
LC = language comprehension; EV = expressive vocabulary; EM = expressieve morphosyntax  
\*\*\* p < 0.001

Quotiënt scores on T0 and improvement of mono- and multilingual children

	N	M LC T0 (SD)	M EV T0 (SD)	M EM T0 (SD)
Monolingual	109	83.7*** (12.73)	85.5*** (14.66)	74.29 (7.62)
Multilingual	32	72.5 (12.46)	68.5 (14.00)	71.78 (5.35)

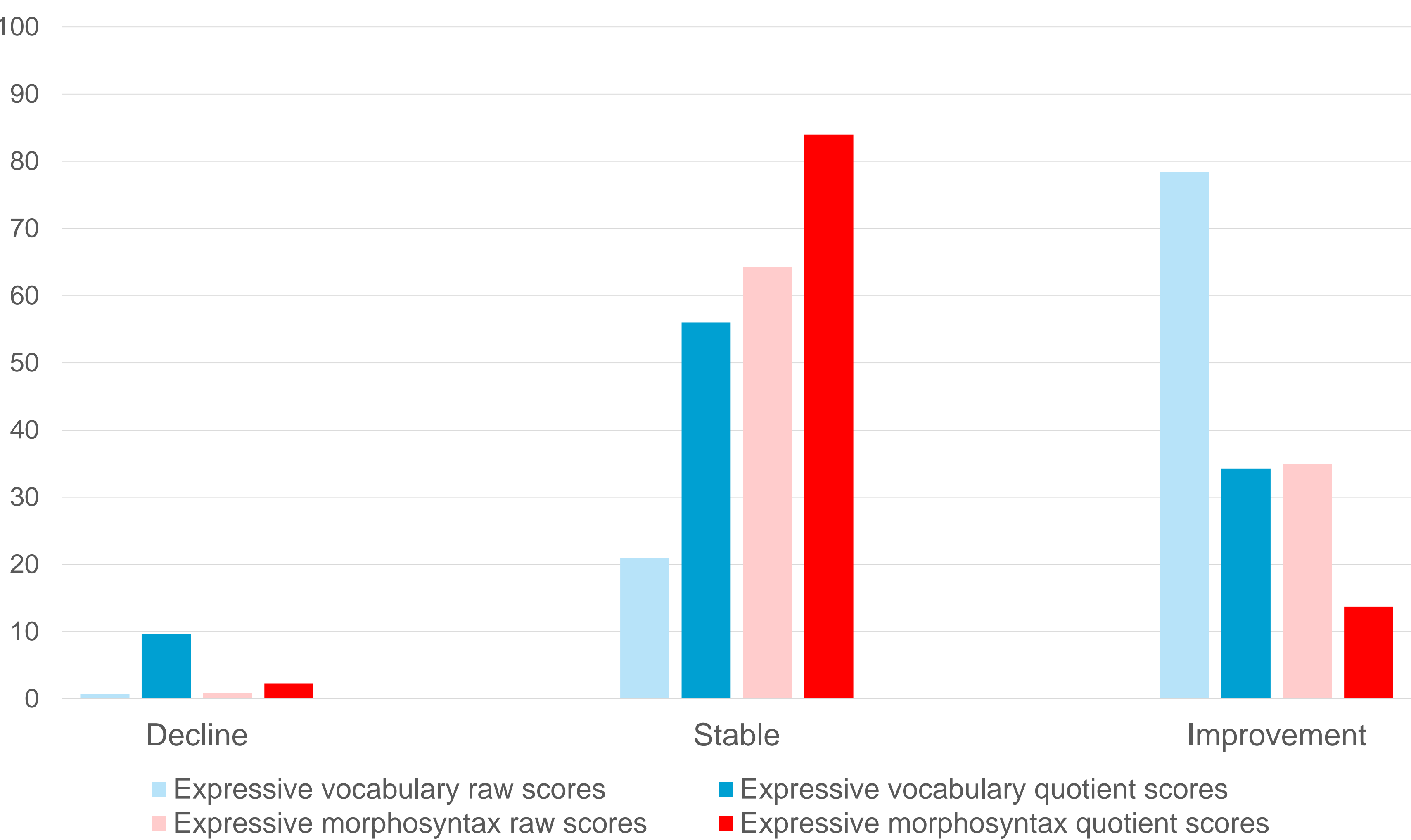
	N	M LC T1-T0 (SD)	M EV T1-T0 (SD)	M EM T1-T0 (SD)
Monolingual	97	3.3 (9.53)	4.1 (11.96)	1.99 (5.78)
Multilingual	30	4.3 (9.55)	7.7 (11.20)	2.87 (6.46)





# Improvement in language performance

Scores on expressive language tests: % decline – stable – improvement from T0-T1



Shift from scores below mean on T0 to mean on T1

		Quotient scores < 85 on T0	Quotient scores ≥ 85 on T1	
	N	n	n	%
Language comprehension	130	77	19	24.7
Receptive vocabulary	126	29	10	34.5
Expressive vocabulary	134	69	23	33.3
Expressive morphosyntax	131	123	8	6.5

Quotient scores on expressive language tests on T0 and T1

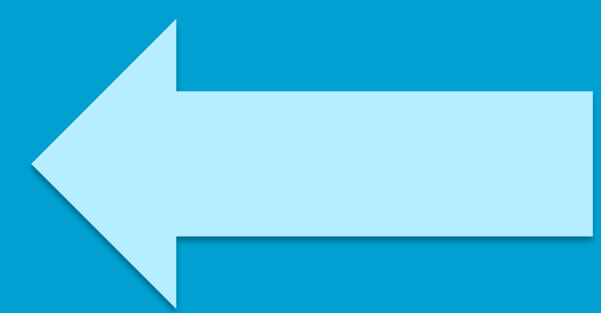
		N	M	SD	Min	Max	> 0.5 SD improvement	Effect size d <sup>a</sup>
Expressive vocabulary	T0	132	81.6	15.94	55	123		
	T1		85.6***	15.19	55	130	29%	0.32
Expressive morphosyntax	T0	131	73.5	6.48	58	98		
	T1		75.4***	6.57	64	99	12%	0.32

<sup>a</sup> Using pooled SDs of T0 and T1  
\*\*\*  $p < 0.001$

Quotient scores on T0 and T1 and effect sizes for receptive-expressive and expressive language disorder

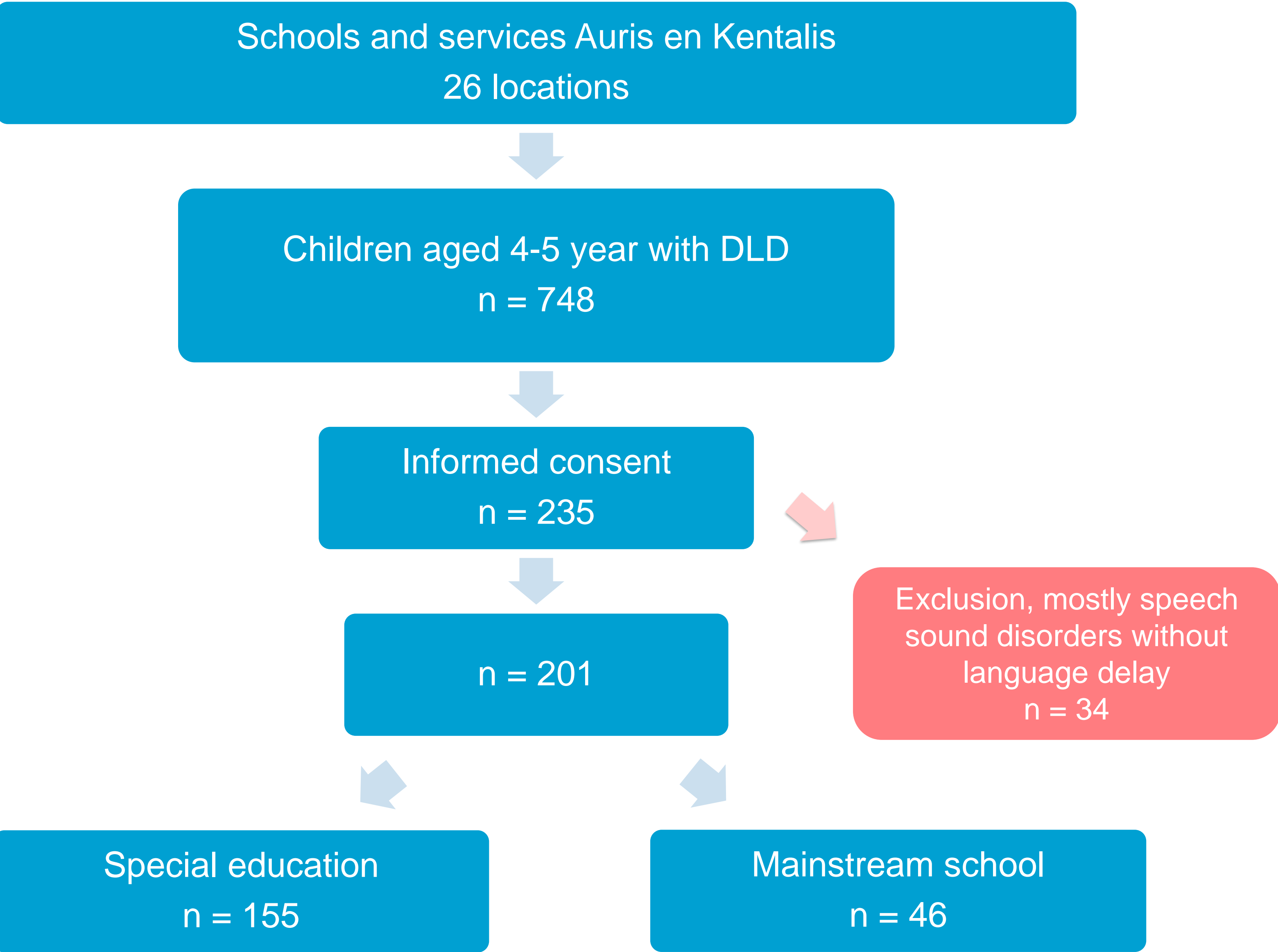
		N	Mean T0	St. Dev.	Mean T1	St. Dev.	Effect size d <sup>a</sup>
Language comprehension	Receptive-expressive disorder	77	71.96	8.44	77.71***	11.39	0.58
	Expressive disorder	53	93.75	6.94	93.74	11.11	n/a
Receptive vocabulary	Receptive-expressive disorder	70	86.79	13.21	88.99	12.69	0.17
	Expressive disorder	52	100.08	11.38	99.27	11.61	n/a
Expressive vocabulary	Receptive-expressive disorder	75	74.91	14.47	80.05***	13.68	0.37
	Expressive disorder	53	88.87	14.80	94.55**	13.40	0.39
Expressive morphosyntax	Receptive-expressive disorder	71	72.32	6.76	74.18**	6.14	0.29
	Expressive disorder	55	74.65	5.91	76.95*	6.93	0.36

<sup>a</sup> Using pooled SDs of T0 and T1



# Characteristics schools and therapy

### Recruitment process and sample overview



Age at start of study		
Mean	Minimum	Maximum
4;11 jaar	3;11 jaar	5;8 jaar

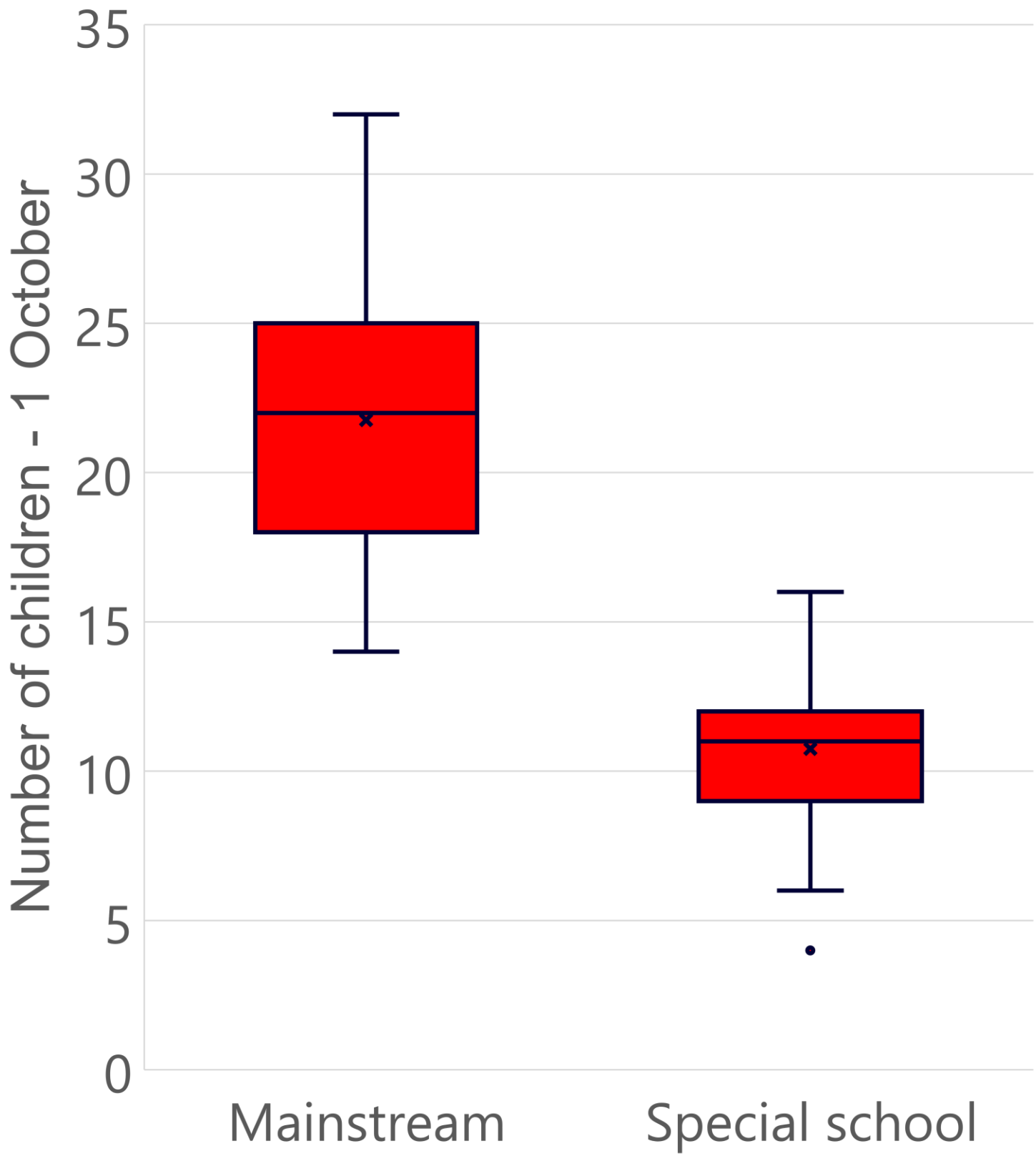
Boys	Girls
n = 141	n = 60

### Language scores and non-verbal IQ of children on specials schools and mainstream schools

	Composite language score <sup>a</sup> (LC – EV – EMS) on T0			Composite difference score T1 – T0			Non-verbal IQ		
	n	Mean	SD	n	Mean	SD	n	Mean	SD
Special school	133	79.2	10.57	117	3.1	5.19	149	99	12.5
Mainstream school	23	83.1	11.80	15	4.4	2.54	44	103	14.9
Significance		n.s.			n.s.			n.s.	

<sup>a</sup> Composite score of standardized tests:  
• Schlichting language comprehension (LC)  
• Schlichting expressive vocabulary (EV)  
• Schlichting expressive morphosyntax (EM)

### Number of children in classroom



### Speech and language therapy – service delivery

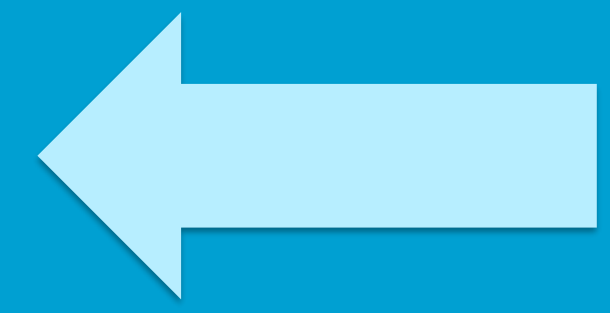
Number of minutes	Special education – SLT at school (n = 133) Number of children receiving these sessions		
	Individual	2-4 children	5-9 children
10	17	2	0
15	56	8	5
20	111	53	7
25	51	38	9
30	48	55	29
35	1	0	5
40	2	1	1
45	1	0	0
75	2	0	0

Number of minutes	Mainstream – SLT in private practice (n = 46) Number of children receiving these sessions		
	Individual	2-4 children	5-9 children
30	46	0	0

### Speech and language therapy in special schools – minutes per week

	Individual (n = 130)	Group (n = 96)	Total (n = 133)
Mean	24	25	42
Median	23	13	31
St. dev.	10	29	28
Minimum	5	1	17
Maximum	68	147	176





# Over de auteurs

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