

Training morphosyntactic skills in preschoolers with DLD

Inge van Dijke¹, Iris Duinmeijer², Luisa de Heer², Lisanne Geurts¹ & Anouk Scheffer¹

¹Royal Auris Group, ²Dutch Foundation of the Deaf and Hard of Hearing Child (NSDSK)

INTRODUCTION

Morphosyntactic problems are a core symptom of Developmental Language Disorder (DLD). In the Netherlands, children with (presumed) DLD can receive special care in **language-focused treatment groups**. The focus in these treatment groups mainly lies on improving communicative intentions, vocabulary and expressive phonology. Morphosyntactic skills receive less attention. We developed a **group-based intervention targeting morphosyntactic skills** in young children with DLD (inspired by the intervention described in Bruinsma et al. 2020). In this study, we tested the **effect** of the intervention on the morphosyntactic skills of preschoolers with DLD and we evaluated the **usability** for pedagogical practitioners.

PARTICIPANTS

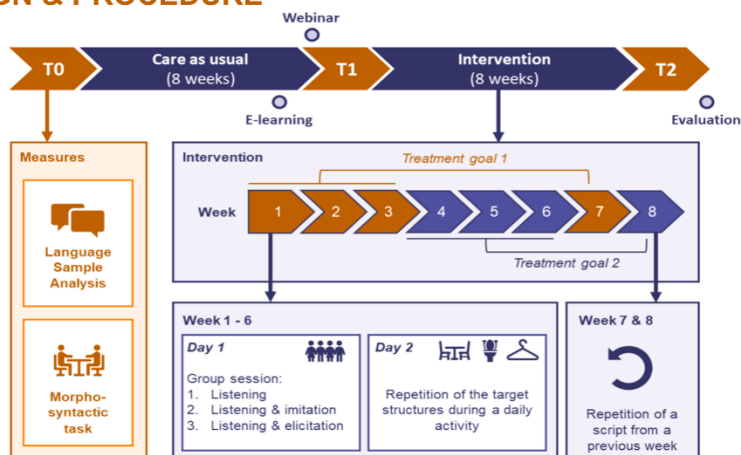
	(A)	(A)	
♂	13	7	20
♀	3	4	7
	16	11	27

	Age ¹	IQ ²	LC ²	RV ²	EV ²	EM ²
M	3;04	93	78	84	69	74
Min	2;10	72	55	55	55	55
Max	3;09	115	105	110	100	92

Note I. IQ = intelligence quotient, LC = language comprehension, RV = receptive vocabulary, EV = expressive vocabulary, EM = expressive morphosyntax.

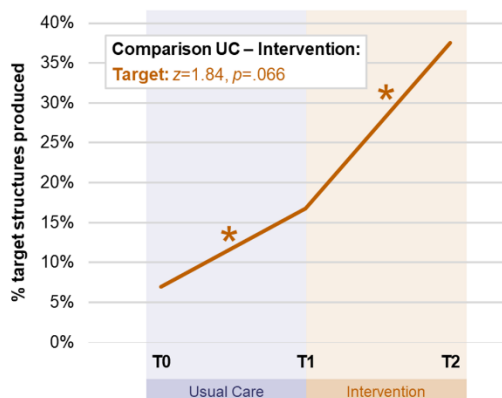
Note II. ¹ Age at baseline (T0). ² Latest clinical test scores before T1 as measured with standardized tests ($\mu=100$; $\sigma=15$).

DESIGN & PROCEDURE

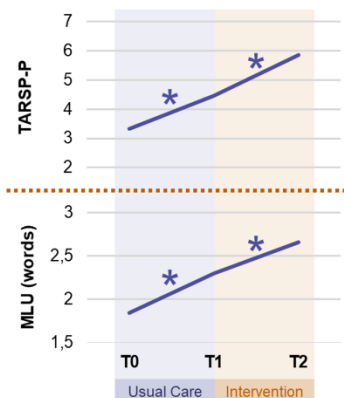
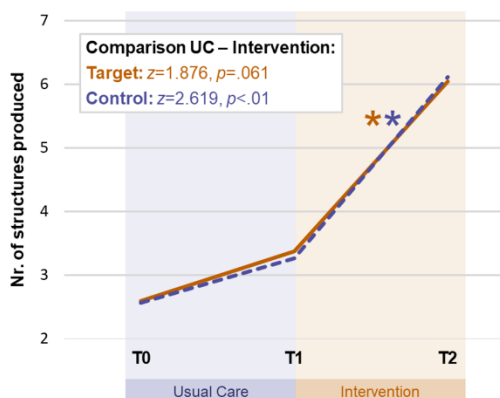


RESULTS

MORPHOSYNTACTIC TASK



LANGUAGE SAMPLE ANALYSIS



— Target structures — Control structures — General measures

EVALUATION (n=19)

Did the intervention fit into the **daily treatment program**?



Did the intervention suit the **morphosyntactic level** of the children?



Did the intervention suit the **general interests** of the children?



CONCLUSIONS

Children made **progress in their morphosyntactic skills** during UC and the intervention period. This growth could not irrefutably be linked to the intervention, because of a **possible maturational effect**. However, practitioners reported that the intervention **improved their knowledge** on morphosyntactic development and their confidence to train these skills in children. Furthermore, our study shows that the morphosyntactic skills of preschoolers with DLD can improve significantly over relatively short periods of time. The results also underline the **importance of using LSA** measures when monitoring the morphosyntactic development of children, as they might be more sensitive to change than standardized tests. Since very few group-based morphosyntactic interventions exist in the Netherlands, this intervention might be of **added value** for clinical practice in (special) care for DLD.

Abstract

Introduction: Problems in morphosyntactic development are a core symptom of developmental language disorder (DLD). In this study, effects and usability of a newly developed group-based intervention to improve the morphosyntactic skills of toddlers with DLD are tested.

Methods: Twenty-seven pre-schoolers diagnosed with DLD (2;10-3;9) participated in a single-subject A-B study in which the used target and control structures were monitored with a morphosyntactic task and language sample analyses (LSA). Progression during eight weeks care-as-usual was compared to progression during eight weeks morphosyntactic intervention. The intervention consisted of a weekly script-based group session in which one morphosyntactic structure was targeted, and daily activities in which the target structure was repeated. The intervention was provided by trained pedagogical practitioners, who were coached by a speech and language therapist. Usability was evaluated using questionnaires.

Results: Analyses demonstrate that children show progress in their use of grammatical structures during care-as-usual and the intervention period (see the figures on the poster). Growth seems larger in the intervention period than in the period care-as-usual. However, the slopes are only significantly different for the use of control structures in LSA and not for the use of target structures. Evaluations among practitioners showed that they are positive about the intervention. They note that the intervention improved their deployment of techniques to stimulate the morphosyntactic development of children with DLD.

Conclusions: Although effects of the intervention could not be shown statistically, usability proved to be high. Pedagogical professionals reported to have enhanced knowledge on morphosyntactic development and felt more confident to train these skills in children with DLD. Furthermore, this study shows that children's morphosyntactic skills can improve over relatively short periods of time and language sample analyses seem to be sensitive to detect these changes. Currently, very few group-based morphosyntactic interventions exist (in the Netherlands). Therefore, using the proposed intervention might benefit the treatment of morphosyntactic problems in children with DLD.

Keywords: developmental language disorder, morphosyntactic skills, intervention

Example of a script¹

Treatment goal	E: Three- or four-phrase sentences with an auxiliary verb and a past participle
Target structures	<ul style="list-style-type: none"> Past participle (morphological structure) Auxiliary verb + past participle (phrase structure)
Group theme	Summertime
Materials	<ul style="list-style-type: none"> Picnic blanket Fruits and vegetables (e.g., strawberry, apple, banana, cucumber and tomato, already washed and cut into small pieces) Drinks (water or milk) Plates Cups Cutlery

Part I: Listening

In the first part you are going to **introduce the target structures**. Children are only required to listen. The sentences contain an auxiliary verb with a past participle. These target structures are underlined. This script is an example. You are allowed to adapt it. However, please be sure that the final script still holds at least ten sentences containing the target structures.

Procedure

First, you introduce the activity. If possible, speak in sentences that match the target structures and the corresponding morphosyntactic level afterwards. For instance:

Dutch sentence*	English translation	Action
Vandaag / gaan / we / picknicken	Today / we / are having / a picnic	Place the blanket on the floor
Ik / <u>heb</u> / een kleed / op de grond / <u>gelegd</u>	I / <u>have put</u> / a blanket / on the floor	Take some fruit
Ik / <u>heb</u> / fruit / <u>gekocht</u>	I / <u>have bought</u> / fruit	
Ik / <u>heb</u> / de aardbei / <u>gewassen</u>	I / <u>have washed</u> / the strawberry	
Ik / <u>heb</u> / de appel / <u>gesneden</u>	I / <u>have cut</u> / the apple	
Ik / <u>heb</u> / de banaan / <u>gepeld</u>	I / <u>have peeled</u> / the banana	Take some vegetables
Ik / <u>heb</u> / ook / groente / <u>gekocht</u>	I / <u>have</u> / also / <u>bought</u> / vegetables	Place the food on the blanket
Ik / <u>heb</u> / het eten / op het kleed / <u>gelegd</u>	I / <u>have placed</u> / the food / on the blanket	Hand out the plates
Ik / <u>heb</u> / voor iedereen / een bord / <u>gepakt</u>	I / <u>have grabbed</u> / a plate / for everyone	Point to your stomach
Ik / <u>heb</u> / honger / <u>gekregen</u>	I / <u>have become</u> / hungry	Eat a piece of apple
mmm... ik / <u>heb</u> / de appel / <u>geproefd</u>	mmm... I / <u>have tasted</u> / the apple	

* Phrases are divided by a slash (/)

Part II: Listening & imitation

The purpose of this exercise is to stimulate children to **produce the target structure at least once** themselves. In this part, you only use the following target sentence:

¹ This script is based on protocols that were written for the InterventOS research project by Gerda Bruinsma and Utrecht University of Applied Sciences, Utrecht University and the Royal Auris Group, and on the book *Communicatieve Taaltherapie* by Rodenburg-van Wee et al. (2013).

'I / have tasted / X'. For example: 'I / have tasted / apple'.

Procedure

You start by modelling the target sentence and the corresponding action three times. Then you give children turns to taste something and imitate your sentence.

Dutch sentence	English translation	Action
		Taste a piece of apple
Ik <u>heb</u> appel <u>geproefd</u>	I <u>have tasted</u> apple	Taste a piece of banana
Ik <u>heb</u> banaan <u>geproefd</u>	I <u>have tasted</u> banana	Taste a piece of cucumber
Ik <u>heb</u> komkommer <u>geproefd</u>	I <u>have tasted</u> cucumber	Pass the turn to a child
Nu mag jij proeven	You can taste now	Pass the turn to another child

Tip: First give a turn to the child that can verbally express himself best.

When a child has tasted a product, but does not say anything afterwards, you can encourage the child by saying "You can say it too".

After an attempt by the child, you repeat the sentence using the target structure. Even after a successful attempt by the child, you repeat the sentence. It is okay if a child does not give a verbal response. You just produce the target sentence yourself. For instance: "you have tasted the tomato".

Part III: Listening & elicitation

In this part you are going to use **the target structure in varying sentences**. You focus on producing three- or four-phrase sentences containing an auxiliary verb and a past participle. You can find examples of sentences in the table below.

Procedure

You are sitting with the children on the picnic blanket. Everyone chooses something to eat (or drink), places the food on the plate and eats the food (or pretends to do so). First, you **model the target structure three times** in varying sentences. After that, you elicit the target structures from children by giving turns. The purpose of this exercise is to stimulate the children to **produce the target structure twice** themselves. The table below contains optional target sentences that you can produce yourself or can try to elicit from children.

An example of varied modelling:

Dutch sentence	English translation	Action
		Take a cup
Ik <u>heb</u> een beker <u>gepakt</u>	I <u>have grabbed</u> a cup	Pour milk into the cup
Ik <u>heb</u> melk in de beker <u>gedaan</u>	I <u>have poured</u> milk into the cup	Place a banana on your plate
Ik <u>heb</u> een banaan op mijn bord <u>gelegd</u>	I <u>have placed</u> a banana on my plate	Pass the turn to a child

Optional target sentences to use in this part:

Dutch sentence	English translation
Ik <u>heb</u> een peer <u>gepakt</u>	I <u>have grabbed</u> a pear
Jij <u>hebt</u> de melk <u>gepakt</u>	You <u>have grabbed</u> the milk
De appel <u>is</u> <u>gevallen</u>	The apple <u>has</u> <u>fallen</u>
Ik <u>heb</u> komkommer <u>geproefd</u>	I <u>have tasted</u> cucumber
Ik <u>heb</u> mijn bord leeg <u>gegeten</u>	I <u>have finished</u> my plate
Ik <u>heb</u> met de vork in de banaan <u>geprikt</u>	I <u>have poked</u> the banana with my fork
Jij <u>hebt</u> water <u>gekozen</u>	You <u>have chosen</u> water

Jij <u>hebt</u> een tomaat aan [++] <u>gegeven</u>	You <u>have given</u> a tomato to [++]
[++] <u>heeft</u> melk <u>gedronken</u>	[++] <u>has drunk</u> the milk
De beker <u>is</u> <u>gevallen</u>	The cup <u>has fallen</u>
Ik <u>heb</u> water <u>geknoeid</u>	I <u>have spilled</u> water
Jij <u>hebt</u> goed <u>geluisterd</u>	You <u>have listened</u> well

A name can be inserted at [++]