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Classification and intervention of children with speech disorders

Annette Fox-Boyer
EUAS Rostock Germany

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Classification of SD

- According to severity (van Riper, 1963).
- According to aetiology (Shriberg, 1997).
- No classification useful, but a description of strength and weaknesses in the speech processing chain (Stackhouse & Wells, 1997).
- According to process types in combination with underlying deficits (Dodd, 1995, 2001).

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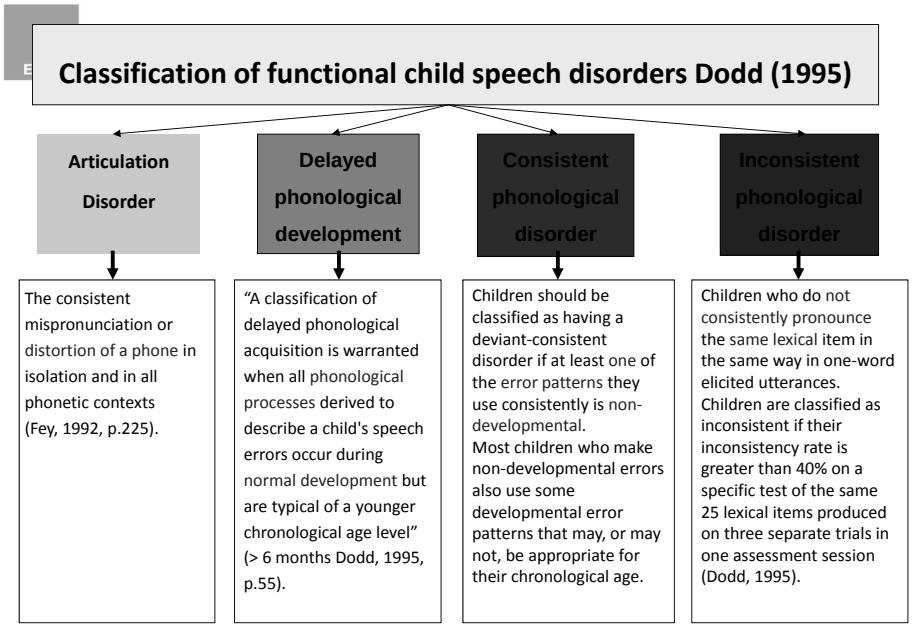
Classification by Dodd

Claims by Dodd (1995):

1. Speech disorders can be classified according to the symptoms a child shows, i.e. the phonetic and / or phonological processes, or the lack of phonological processes.
2. Each symptom type is connected with a specific underlying deficit in the speech processing chain.



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Classifications results

	English	Cantonese	Putonghua	Spanish	German**	
No of children	55	17	33	20	100	84
Articulation	14%	12%	3%	10%	20%	5%
Delay	58%	47%	55%	65%	51%	61%
Deviant	12%	29%	24%	25%	17%	20%
Inconsistent	16%	12%	18%	n.a.*	12%	14%

English (Dodd, 1995); Cantonese (So & Dodd, 1994); Putonghua (Zhu Hua & Dodd, 2000b); Spanish (Goldstein, 1996) * not assessed
** The left column indicates the number and percentage of children including children with an isolated lisp, while the right column presents data excluding these children

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Normative Data Danish

Group	Age	Number of children	Percent
1	2;6-2;11	75	17.8 %
2	3;0-3;5	81	19.2 %
3	3;6-3;11	75	17.8 %
4	4;0-4;5	79	18.7
5	4;6-4;11	112	26.5
Total		422	100.0

- Data collected in 20 different cities from Jutland, Funen, Sealand and Bornholm

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Normative Data Danish

Fonologiske Processer	Aldersgruppe				
	2;6-2;11	3;0-3;5	3;6-3;11	4;0-4;5	4;6-4;11
Initial consonant cluster reduction					
Fronting of /sch/ → /s/ (in 1-2 items)					
Final consonant cluster reduction					
Weak syllable deletion					
Assimilation (max.3-4 items)					
Fronting of velars /g k/ → /d t/					

Clausen, 2014

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Assessment Material

- Picture Naming Task Material ⇨ Identification of processes
- 25-word inconsistency test ⇨ Identification of word production consistency

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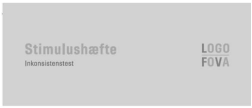
Assessment tool Danish



- LogoFoVa (former: PLABST)
- Picture naming task including 100 items:

  - all consonants and vowels in word initial, syllable initial, syllable final and word final position
  - initial and final consonant clusters illustrated and expected to be part of small children's vocabulary.

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LogoFoVa

- The http://www.cdi-clex.org/vocabulary/singleword/search/corpora/4 was used for the selection of the items
- The test was used twice in order
  - to collect normative data and
  - to optimize the illustrations as well as the item selection

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Articulation / Phonetic Dis.

- **Case History:** family history of phonetic probs. (lisp)
- **Possible Causes:** Motor execution problem?
- 25 % of children with an isolated lisp have a myofunctional disorder
- 25% perform low, but within normal range
- 30% might just have copied the incorrect production pattern

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Articulation / Phonetic Dis.

- **Case History:** family history of phonetic probs (lisp)
- **Possible Causes:** Motor execution problem?
  25 % of children with an isolated lisp have a myofunctional disorder
  25% perform low, but within normal range
  30% might just have copied the incorrect production pattern
- **Spontaneous Remission:** no
- **Intervention suggested:** Traditional Articulation Therapy (van Riper, 1963); if diagnosed myofunctional therapy

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Phonological Delay

- **Case History:** Hearing + MOE history
- **Possible Causes:** mainly nothing
  Children follow pattern of normally developing children within speech processing chain
- **Spontaneous Remission:** depending on age: if < 5 years of age often (70%), if > 5 years of age rare
- **Intervention suggested:** Phonological Intervention

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Deviant Consistent Phon. Dis.

- **Case History:** 63% positive family history
- **Possible Causes:** phonological recognition deficit; phonological awareness deficit

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Deviant Consistent Phon. Dis.

- **Case History:** 63% positive family history
- **Possible Causes:** phonological recognition deficit; phonological awareness deficit
- **Spontaneous Remission:** not for deviant processes, if at all for developmental processes
- **Intervention suggested:** Phonological Intervention
- **Risk factor for:** literacy difficulties

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Inconsistent Phonological Dis.

- **Two groups:** a) taker b) fake - late talker, sometimes even signer
- **Case History:** positive case history for pregnancy / birth problems
- **Possible Causes:** phonological working memory deficit

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Inconsistent Phonological Dis.

- **Case History:** positive case history for pregnancy / birth problems
- **Possible Causes:** phonological working memory deficit
- **Spontaneous Remission:** no
- **Intervention suggested:** Consistency Intervention followed by Phonological Intervention
- **Risk factor for:** literacy difficulties

Classification of functional child speech disorders Dodd (1995)

Phonetic Disorder	Phonological delay	Deviant consistent phonological disorder	Inconsistent phonological disorder
Articulation Therapie Van Riper (1963) 1. Phone perception 2. Motor training 3. Phone learning 4. Phone stabilisation Myofunctional training	Delay of 1-6 months: wait! Delay > 6 months: intervention of delayed processes only **Phonological Intervention**	**Phonological Intervention** ⇨primarily receptive therapy for contrast identification ⇨Followed by expressive tasks ⇨ Caution: traditional Artic-Intervention can increase problem	**Inconsistency Therapy** (Intervention combining -sequencing and memory task with - tasks about self speech motor control - and word / syllable structure awareness)

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Articulation intervention

- Traditional articulation intervention (van Riper, 1953/63; Van Riper & Erickson, 1996: Speech Correction: Principles and Methods)
- 3 main parts:
  - Auditory perception
  - Oro-motor training
  - Sound production > generalisation
- Studies of effectiveness

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Articulation intervention

- Wolfe, V., Presley, C., & Mesaris, J. (2003). The importance of sound identification training in phonological intervention. American Journal of Speech and Language Pathology, 12, 282–288.
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Phonological intervention

- Minimal Pair Therapie (Blance 1982)
- Metaphon (Howel & Dean, 1995)
- Phonological Intervention in Cycles (Hodson & Paden, 1993)
- Psycholinguistic Intervention (Pascoe & Stackhouse, 2006)
- P.O.P.T. (Fox, 2005, Fox-Boyer in preparation)

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Phonological intervention

- Minimal Pair Intervention
- Baker, E., & McLeod, S. (2011). Evidence-Based Practice for children with speech sound disorders: Part 1 Narrative Review. Language Speech and Hearing Services in Schools, 42, 102–139.
- Williams, A. L., McLeod, S., & McCauley R. (2010). Interventions for Speech Sounds Disorders in Children, Baltimore: Brookes.
- Cyclic Intervention
- Almost, D., & Rosenbaum, P. (1989). Effectiveness of speech intervention for phonological disorders: A randomized controlled trial. Development Medicine and Child Neurology, 40. 319–324.
- Keske-Soares, M., Brancalioni, A. R., Marinin, C., Pagliarin, K. C., & Ceron, M. I. (2008). Therapy effectiveness for phonological disorders with different therapeutical approaches. Pró-Fono Revista de Atualização Científica, 3, 153–158.

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Phonological intervention

- Metaphon
- Dean, E. C., Howell, J., Reid, J., Grieve, R., & Donaldson, M. (1996). Evaluating therapy for child phonological disorder: A group study of Metaphon Therapy. In T.W. Powell (ed.), Pathologies of speech and language: contributions of clinical phonetics linguistics. New Orleans: International Clinical Phonetics and Linguistics Association.
- Harbers, H. M., Paden, E. P., & Halle, J. W. (1998). Phonological awareness and production: changes during intervention. Language Speech and Hearing Services in Schools, 30, 50–60.
- P.O.P.T
- Teutsch, A., & Fox, A. (2004). Vergleich der Effektivität von artikulatorischer vs. phonologischer Therapie in der Behandlung kindlicher phonologischer Störungen. Sprache–Stimme–Gehör, 28, 178–185.
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P.O.P.T.

- **P**sycholinguistic **o**rientated **P**honological **Therapie** (Fox, 2003)
- Language independent approach
- Based on speech processing model by Stackhouse & Wells (1997)
- Structure can be adapted onto language specific processed
- Intervention in intervals: 10-25 sessions followed by break of three months
- Intervention hierarchy: deviant > developmental > phonetic processes

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P.O.P.T. - Phase I

Receptive phase – child is asked to identify stimuli.

The child may attempt production but it does not need to.

Aims:

- Increasing the ability for phonological recognition specifically for the trained items.
- Self-correction of phonological representations

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I. Introduction of all sounds part of a treated phonological process (target and substitution sounds).

II. All sensoric channels are used: hearing seeing, feeling being explained how they are produced and each phoneme will be represented by a picture.

III. Main tasks: Hierarchical identification of target and substitution sounds

1 isolated phonemes 2 CV or VCV or VC stimuli

3 non-words 4 real words

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P.O.P.T. - Phase II

Production phase on non-meaningful items: isolated sounds or syllables: CV VCV or VC

Aim:

Creation a new motor programs for the target sounds in contrast to the motor programs of the substitution sounds. (motor programing)

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- To experiment with the playful production of the target and substitution phones
- First, the child is asked to imitate the isolated phones identified in phase I, stimuli change very often
- Second, as soon as the phones can be produced phonemically correct, the child is asked to imitate CV, VCV and VC stimuli.

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P.O.P.T. - Phase III

Self-receptive and productive phase

Aims:

Creating new motor programs for words on the basis of a corrected phonological representation and the ability to produce all phones phonemically correct

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- The child is asked to identify phonemes from its own representation or by listening to its own output.
- The child is asked to produce words introducing the correct target or substitution sound

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Inconsistency intervention

- Core-Vocabulary Approach (Dodd 1995)
- Inconsistency Approach (Fox, 2009)

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- Zhu Hua & Dodd, B. (2006). Phonological Development and Disorders in Children. A Multilingual Perspective. Clevedon: Multilingual Matters.

- http://www.csu.edu.au/research/multilingual-speech

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Prof. Annette Fox-Boyer PhD
European University of Applied Sciences - EUAS
Department of Speech and Language Therapy
Werftstr. 5; 18057 Rostock
a.fox@eufh.de www.eufh-med.de

Seminare und aktuelle Informationen:
www.annette-fox-boyer.de