Classification and intervention of children with speech disorders

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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).

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.

Classification of functional child speech disorders Dodd (1995)

- Articulation Disorder
- Delayed phonological development
- Consistent phonological disorder
- Inconsistent phonological disorder

The consistent mispronunciation or distortion of a phone in isolation and in all phonetic contexts (Fey, 1992, p.225).

“A classification of delayed phonological acquisition is warranted when all phonological processes derived to describe a child’s speech errors occur during normal development but are typical of a younger chronological age level” (> 6 months Dodd, 1995, p.55).

Children should be classified as having a deviant-consistent disorder if at least one of the error patterns they use consistently is non-developmental. Most children who make non-developmental errors also use some developmental error patterns that may, or may not, be appropriate for their chronological age.

Children who do not consistently pronounce the same lexical item in the same way in one-word elicited utterances. Children are classified as inconsistent if their inconsistency rate is greater than 40% on a specific test of the same 25 lexical items produced on three separate trials in one assessment session (Dodd, 1995).
### Classifications results

<table>
<thead>
<tr>
<th></th>
<th>English</th>
<th>Cantonese</th>
<th>Putonghua</th>
<th>Spanish</th>
<th>German**</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of children</td>
<td>55</td>
<td>17</td>
<td>33</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>Articulation</td>
<td>14%</td>
<td>12%</td>
<td>3%</td>
<td>10%</td>
<td>20%</td>
</tr>
<tr>
<td>Delay</td>
<td>58%</td>
<td>47%</td>
<td>55%</td>
<td>65%</td>
<td>51%</td>
</tr>
<tr>
<td>Deviant</td>
<td>12%</td>
<td>29%</td>
<td>24%</td>
<td>25%</td>
<td>17%</td>
</tr>
<tr>
<td>Inconsistent</td>
<td>16%</td>
<td>12%</td>
<td>18%</td>
<td>n.a.*</td>
<td>12%</td>
</tr>
</tbody>
</table>

*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.

### Normative Data Danish

<table>
<thead>
<tr>
<th>Group</th>
<th>Age</th>
<th>Number of children</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2;6-2;11</td>
<td>75</td>
<td>17.8%</td>
</tr>
<tr>
<td>2</td>
<td>3;0-3;5</td>
<td>81</td>
<td>19.2%</td>
</tr>
<tr>
<td>3</td>
<td>3;6-3;11</td>
<td>75</td>
<td>17.8%</td>
</tr>
<tr>
<td>4</td>
<td>4;0-4;5</td>
<td>79</td>
<td>18.7%</td>
</tr>
<tr>
<td>5</td>
<td>4;6-4;11</td>
<td>112</td>
<td>26.5%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>422</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

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

### Assessment Material

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

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

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
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

Deviant Consistent Phon. Dis.

• **Case History:** 63% positive family history

• **Possible Causes:** phonological recognition deficit; phonological awareness deficit

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

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
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

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**

Classification of functional child speech disorders Dodd (1995)

- **Articulation Therapy**
  - 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**
  - 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

Articulation intervention

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)

Phonological intervention

- Minimal Pair Intervention
- Cyclic Intervention

Phonological intervention

- Metaphon
- P.O.P.T.

P.O.P.T.

- Psycholinguistic orientated Phonological 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
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

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

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)

• 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.
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

• 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

Inconsistency intervention

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

Literatur

• Fox, A. (2011) Kindliche Aussprachestörungen. Idstein: Schulz-Kirchner

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