



Equal educational opportunities for children with communication disorders – European phoniatrians standpoint

Speech and language screening

Antoinette am Zehnhoff-Dinnesen

Clinic and Policlinic for Phoniatics and Pedaudiology

Muenster, Germany



Definition

- **Language disorders** are identified when a person has difficulty with expressive language, receptive language, or pragmatic language”.
- **“Speech disorders** are identified when a person's voice, fluency, or articulation call attention to the speaker because his or her speech is sufficiently different from the norm.”
- **“Cognitive-communication disorders”** concern “difficulty with thinking skills including perception, memory, awareness, reasoning, judgment, intellect and imagination.”

(Sharp & Hillenbrand 2008)

(ASHA 2011)



Impact of speech and language

- Speech/language impairment may be the first symptom of a severe disease
- Speech and language are the basis of literacy skills and a successful school career
- “Learning takes place through the process of communication”.
(ASHA 2011)
- Delayed speech and language development can cause psychosocial problems in school age
(Andersson 2006)





Prevalence

Language disorders	16.9% kindergartners/first graders 13.5% fifth graders (Lee et al 2004)
Specific language impairment	7 % schoolchildren (Bartlett et al 2002)
Dyslexia	5-9% schoolchildren (NIH 2010)
Stuttering	1.2% kindergartners/first graders 1.1% fifth graders (Lee et al 2004)
Hoarseness	6-24% children/adolescents (Fuchs et al 2009)



Screening at preschool age (2 years)

- Early language development shows large variability
- The identification of delayed speech and language development is difficult

(Szagun 2009; Sachse 2005)

- Indicators for early detection of language delay/ late talker
 - delayed onset of expressive language; at 24 months reduced quantity of early lexicon
- Most consistently reported risk factors for speech and language disorders:

- family history of speech and language delay
- male gender
- perinatal factors

(Nelson et al 2006)





Screening at preschool age (2 years)



- “Parent language report is a valid and efficient tool for assessing productive language abilities and judging expressive language delay in 2-year-old toddlers.”

(Sachse & v. Suchodoletz 2008)

- **MacArthur-Bates Communicative Development Inventories (CDI)**

(Fenson et al 1994; 2007)

- Parent questionnaire measuring early lexical and grammar development (American English) 16-30 months
- already adapted to several languages
Icelandic (1996); Italian (1999); Hebrew (2000); British English (2000); Swedish (2000); Dutch (2002); Austrian German (2000); German (2001; 2009)
- Crosslingual differences demand own normative data for each language



Screening at preschool age > 3 years

Non-word repetition task (NRT)

- “the task taps many language processes, including speech perception, phonological encoding/memory/assembly and articulation
- therefore, it is a powerful tool that can be used to identify children with language impairments”

(Coady & Evans 2008)





Screening at preschool age (4-6 years)

Examination of preliterate skills for later reading and writing competence:

- Phonological processing: processing of acoustic signals with linguistic content
- Three areas of phonological processing have been found to be most important for reading and writing competence:
 - Phonological awareness
 - Naming speed
 - Phonological working memory

(Ptok et al 2007)





Conclusion preschool screening

- Early intervention by early detection before school to prevent secondary disability and behavioral problems should be the standard, preferably at the age of 3 years

→ **Why speech/language screening in school-beginners?**





Current screenings in schoolchildren

- **Screening for phonetic/phonological disorders in Southern Brazil**

- Deviations in 24.6% of the schoolchildren
- High prevalence probably due to socioeconomic circumstances

(Garcia de Goulart & Chiari 2007)

- **Language/speech screening in Minnesota/Ohio**

	kindergartners/ first graders	fifth graders
language screening	16.9%	13.5%
articulation screening	3.2%	2.6%
fluency screening	1.2%	1.1%
voice screening	19.7%	14.1%

(Lee et al 2004)



Why screening in school beginners?

→ **Second look screening**

- Teachers' and parents' estimates of the prevalence of speech disorders are lower than results of primary identification by speech-language pathologists
(McKinnon et al 2007)
- Progress/late onset of speech/language disorder (e. g. brain tumour, degenerative neurological disease, epilepsy → Landau-Kleffner syndrome, pervasive developmental disorder/atypical autism)
- In spite of earlier preventive examinations speech/language disorder overlooked or covered by comorbidities
- Speech/language therapy interrupted or untimely finished because of social reasons



Why screening in school beginners? → Additional disturbances at school age

School-age children with Specific Language Impairment (SLI) suffer from:

- **Dyslexia in 45-50%**
- **Symptoms of psychological disorders in 30-50%**
 - Expansive behaviour disorders
 - Attention deficit
 - Hyperactivity
 - Oppositional and aggressive behaviour
 - Emotional disturbances
 - Difficulty in perceiving emotions and resolving social problems
- **Four- to fivefold risk to develop psychiatric disturbances**
- **Unsocial behaviour**

(v. Suchodoletz 2004)



Why screening in school beginners? → Stigmatization of language impaired children

- parents often perceive stigmatization of their child
- strong positive relationship between negative labeling and behavioral problems

(v. Suchodoletz & Macharey 2006)





Why screening in school beginners? → Dyslexia

- Importance of early detection of children at risk of dyslexia and/or writing disability
 - Dyslexia and writing disability harm the self-esteem of the child and impede its academic and occupational chances
 - High level of hindered literacy skills in children with pragmatic or specific language impairment (Freed et al 2011)





Why screening in school beginners? → Reading and spelling development



Boets et al 2008:

- Auditory deficit interferes with accurate speech perception
- Auditory deficit disrupts the development of phonological, reading and spelling skills
- Visual deficit interferes with literacy development
- Visual deficit affects orthographic skills

→ Phonological awareness (hearing), orthographic ability (vision) and verbal short-term memory are predictors of reading and spelling development





Why screening in school beginners? → Reading difficulty

Early detection of reading difficulty risk

- Phonology underlies letter-sound decoding skills
- Syntax and morphology underlie reading comprehension



→ **Grammar and Phonology Screening Test (GAPS) for preschool and young school-aged children** (van der Lely & Marshall 2010)

- 3:6 to 6:6 years old children
- 11 sentences and 8 nonsense words for direct imitation
- 10-minute screening test

→ Identifying children with grammatical or phonological impairments

→ Clarifying need of further assessment/remedial help



WHO: ICF-CY

International Classification of Functioning, Disability and Health.
Children and Youth Version (2007)

- Questionnaires for 4 age groups: <3y ; 3-6y; 7-12y; 13-18y
- 4 Domains
 - Body functions and structures and impairments
 - Activities and participation
 - Environmental factors
 - Personal factors





ICF-CY

<i>Short List of A&P domains</i>	<i>Presence of problem</i>	<i>Performance Qualifier</i>	<i>Capacity Qualifier</i>
d1. LEARNING AND APPLYING KNOWLEDGE			
d120 Does ___ have any problems mouthing, touching or tasting things?			
d131 Does ___ have any problems playing with things?			
d133 Does ___ have any problems using words, phrases or sentences?			
d137 Does ___ have any problems with concepts such as amount, length, the same or different?			
d140 Does ___ have any problems learning to read?			
d145 Does ___ have any problems learning to write?			
d150 Does ___ have any problems learning to calculate?			
d2. GENERAL TASKS AND DEMANDS			
d210 Does ___ have any problems performing a single task or responding to a single communication?			
d220 Does ___ have any problems performing multiple tasks or responding to a command with multiple components?			
d230 Does ___ have any problems following the requirements of a daily routine?			
d235 Does ___ have any problems being consistent in behaviour from day to day?			
d3. COMMUNICATION			
d310 Does ___ have any problems understanding what others say?			
d315 Does ___ have any problems understanding the meaning of gestures or pictures?			
d330 Does ___ have any problems speaking?			
d331 Does ___ have any problems making different vocal sounds?			
d335 Does ___ have any problems using gestures, pictures, or drawings to communicate?			

<i>Short List of Body Functions</i>	<i>Step1 Presence of Problem</i>	<i>Step 2 Qualifier</i>
b1. MENTAL FUNCTIONS		
b110 Does ___ have any problems being alert and awake?		
b120 Does ___ have any problem with tasks requiring thinking?		
b134 Does ___ have any problem falling asleep or staying asleep?		
b140 Does ___ have any problems paying attention to something or someone?		
b144 Does ___ have any problems remembering or recalling something?		
b147 Does ___ have any problems with clumsiness or coordinating parts of the body?		
b156 Does ___ have any problems distinguishing sounds, shapes or smells?		
b2. SENSORY FUNCTIONS AND PAIN		
b210 Does ___ have any problem seeing things ?		
b230 Does ___ have any problem hearing sounds ?		
b280 Does ___ experience pain more than other children of the same age?		
b3. VOICE AND SPEECH FUNCTIONS Does ___ have any problems making sounds/ saying words?		



ICF-CY

- "The ICF-CY will help us get past simple diagnostic labels. It will ground the picture of children and youth functioning and disability on a continuum within the context of their everyday life and activities."

(Madden, WHO 2007)

- ICF-CY is the basis for an interdisciplinary intervention by different medical and pedagogic professionals and for developing concepts by health care and education politicians

(Hollenweger & Kraus de Carmago 2011)



Why screening in school beginners? → To consider:

- Bi-/multilingualism



- Screening in schools for handicapped children

