

Speech, Language and Hearing:

Are You Ready?



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Goals for Today

1. *Provide basic information regarding:*
 - Communication development
 - Speech, language and hearing impairment
 - The link between communicative development and school readiness
 - Language and learning, with particular emphasis on the oral-written language connection
 - Language development in multilingual, and culturally diverse societies
2. *Provide an overview of speech-language assessment practice*

Communication development

Definitions



What is communication?

- ***Hearing and perception***
- ***Speech***
 - Articulation, voice, fluency, etc.
- ***Language***
 - Symbolic system of communication
 - Content, form and use
 - Comprehension, expression
- ***Communication in various modes***
 - **Oral**
 - **Written**
 - **Signed**: some sign systems are languages (e.g. ASL)
 - **Augmentative and alternative systems (AAC)**: pictures, computers, communication devices, etc.

Hearing and listening

- **Children learn speech and language from listening to others**
- **Complex and multilevel:**
 - Detection
 - Location
 - Attention
 - Discrimination, etc.



Speech

- Neuro-motor aspects
 - Muscles, nerves, Central nervous system
 - Tone, strength, movement, control, etc.
 - Respiration
 - Articulation
 - Resonance
 - Voice
 - Fluency





Language: Content, form and use

- Language assessment needs to consider a child's language *content, form* and *use*
- There is *interaction* among the three areas
- Effective communicators demonstrate competence in all three areas

The image shows a close-up of two pieces of pink chalk lying on a green chalkboard. The chalkboard has some faint, white, hand-drawn markings, including a large 'Y' shape and some curved lines. The lighting is soft, creating a slight shadow for the chalk pieces.

What do we know?

***Principles and knowledge guiding
assessment and intervention***

Predictable sequence

- “Although there are individual differences in rate of development, the sequence in which various forms appear is highly predictable both within and across stages.”

(J. Johnston 2005, Factors that influence language development)

❖ True for children with and without impairments

What is the **reference**?

- **Mental age vs. chronological age as a reference?**
 - **Non verbal mental age** usually sets the pace for language acquisition
 - **Particularly in preschool children with global developmental delays**



Communication at the intersection

- The course of communication development reflects the interplay of factors in *at least the following domains*:
 - social
 - perceptual
 - cognitive processing
 - motor
 - sensory
 - conceptual
 - linguistic
- Theorists differ in the emphasis and degree of determination posited for a given domain
- Large body of evidence supporting that communicative development is influenced by many aspects of human experience and capability


J. Johnston (2005) Factors that influence language development




Resources re. milestones

-- a few suggestions

- **SLPs** in health units, CDCs, etc.
- **Fact sheets** from CASLPA
 - Preschool speech and language development
 - School age speech and language development
 - Hearing health for children
 - www.caslpa.ca
- “Behaviours associated with hearing – what to look for?”
 - www.canadianaudiology.ca/Consumer-Information/hearing-month/press-release.html

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- **Many informative documents, from ASHA, including:**
 - **“How Does Your Child Hear and Talk?”**
 - **“Language and Literacy Development”**
 - <http://www.asha.org/public/speech>

The image shows a close-up of two pink chalk sticks lying on a green chalkboard. The chalkboard has some faint, white, hand-drawn markings, including a large 'V' shape and some scribbles. The lighting is soft, creating a slight shadow for the chalk sticks.

*Speech, language and
communication impairments*

Communication disorders

- “A communication disorder is an impairment in the ability to *receive, send, process, and comprehend* concepts or verbal, nonverbal and graphic symbol systems. This impairment may be evident in the processes of **hearing, language, and/or speech.**”
 - Severity: mild < profound
 - Developmental or acquired
 - Primary disability or secondary to other disabilities

Based on ASHA (1993), Definitions of communication disorders and variations



Language delay or impairment

- Impaired **comprehension** and/or **use** of spoken, written, and/or other symbol systems
- **Intervention** is conducted to achieve improved, altered, augmented, or compensated language behaviours for listening, speaking, reading, and writing

ASHA, 1996, Scope of practice in speech-language pathology



Hearing impairment

- **Children learn speech and language from listening to others**
- **When a hearing loss exists, a child does not get the full benefit of language learning experiences**
- **If a hearing loss goes unnoticed, delays in speech and language learning can occur**

CASLPA Fact sheet on Hearing health for children.

Available at www.caslpa.ca

Speech impairments

- **Some children present with problems affecting aspects of motor speech function**
 - e.g. cerebral palsy and dysarthria
- **The case of children with hearing loss**
- **Other speech impairments:**
 - **Some examples:**
 - Stuttering
 - Voice: vocal nodules
 - Articulation: lisp



Who's at risk of presenting communication problems?

- **Children with developmental disorders, i.e. “special” populations**
 - Communication at the intersection of other developments
- **Children in higher risk groups:**
 - e.g. prematurity of birth, low SES, family history of communicative impairments
- **“Late talkers”**
- **Children with hearing or other perceptual impairments**



Different experiences

- **Some kids are at risk of communication difficulties as a result of differences in experience, language or dialect:**
 - **ESL children**
 - **First Nations children**



The background is a green chalkboard with two pink chalk sticks lying on it. There are faint white chalk drawings on the board, including a large letter 'A' and some curved lines. The text is written in a black, italicized font.

*Communication development and
school readiness*

What's the connection?

What makes school so different?

- How do language requirements differ in school?
- A new **linguistic register**





What makes school so different?

- **Formal interactions of classrooms have **unique features** and differ considerably from:**
 - informal interactions in homes
 - adult-child conversations
- **Even typically developing kids have difficulty with many relational terms used in Kindergarten**

Ongoing research by H. Scarborough (2004)

“Teacher talk”

- **Teachers use language more complex than what kids are used to hearing: 60% of Kindergarten teachers use more complex language than mothers who use the most complex language**

H. Scarborough (2004)

- **In contrast, preschool teachers and moms tend to be very similar in terms of the complexity of their language**

Huttenlocher, Vasilyeva, Cymerman & Levine (2002)



Language pervades the curriculum

- “Verbal skills are the keystone of success in environments like schools that require high degrees of literacy”

Paul, Murray, Clacy & Andrews, 1997, p. 1044.





Some problems may go **unnoticed** or be **misunderstood**

- **Some problems more obvious to detect than others:**
 - easier to notice **errors** than to notice the **absence** of important positive developments
- **Comprehension difficulties can go unnoticed or be attributed to other sources**

What **research** has shown

- Children with learning disabilities frequently have histories of slow language growth
- Children with reading problems often have concomitant oral language deficits
- There is a growing body of research documenting a relationship between oral and written language impairments
 - Catts, Fey, Zhang & Tomblin (2001) found that among children with diagnosed language problems in K, approximately 50% met criteria for reading disability in Gr2 and in Gr4



Outcome studies

- Outcome studies: having “just” a language or communication problem can have important negative consequences on academic success
 - Canada: e.g. Young, Beitchman, Johnson et al, 2002.
 - USA: e.g. Catts, Fey, Tomblin & Zhang, 2002;
 - England: e.g. Snowling, Adams, Bishop & Stothard, 2001; Botting, Faragher, Simkin, Knox, Conti-Ramsden, 2001
- Evidence of potential long-term consequences of communication disorders
 - Persistence of language problems
 - although manifestations change with development
 - Literacy difficulties
 - Learning and academic difficulties more generally
 - Socialization



On a more **positive note...**

- SPLs can be important members of the team charged with early identification of children at risk for reading problems
- **NOT ALL** kids with a history of speech and language delays have literacy or learning difficulties
- **Nevertheless, must be vigilant of cases of **illusory recovery**:**
 - Primary grades are too early for some children to establish whether evidence any educational handicaps

Paul et al., 1997, Stothard et al. 1998

Predictors

- Variables related to academic outcomes in children with history of language impairment:
 - History of language comprehension difficulties
 - Nonverbal IQ, even if in the normal range
 - Persistence of language impairment
 - Degree of language impairment
 - Number of areas of deficit (i.e. specific or broader disorders)
 - Narrative abilities
 - Any other contribution factors
 - Getting off to a good start also appears crucial



Communication skills are *crucial* for school success

- **Oral language skills**
 - Expressive skills
 - Listening skills
 - Language comprehension
- **Written language skills**
- **Ability to use oral and written language skills to learn**
 - Reading to learn
 - Language as a tool of thought
 - problem solving, reasoning, etc.
- **Socialization, peer relations**

What can you do?

- Help to identify and refer children at risk of presenting delays in communicative development
- Collaborate with SLPs and contribute to putting in place an optimal learning environment for children with communicative delays and impairments



Selected resources for parents and professionals

- A few suggestions:
- Canadian Association of Speech-Language Pathologists and Audiologists (CASPLA): www.caspla.ca
- British Columbia Association of Speech/Language Pathologists and Audiologists (BCASLPA): www.bcaslpa.ca
- American Speech-Language-Hearing Association (ASHA) www.asha.org
- *Center of Excellence for Early Child Development – Encyclopedia on Early Childhood Development [online]: www.excellence-earlychildhood.ca*
- Invest in kids: www.investinkids.ca
- The Hanen Centre: www.hanen.org

A green chalkboard with two pieces of pink chalk and faint white chalk drawings. The text "Speech-Language assessment" is written in a black, italicized serif font across the middle of the board. Below it, the text "...and 'What do SLPs do?'" is written in a bold, black sans-serif font. The background shows faint white chalk drawings, including a large 'V' shape and some scribbles.


Speech-Language assessment

...and "What do SLPs do?"

The speech-language pathologist

- As ***communication specialists***, breadth and depth of knowledge re:
 - speech
 - language
 - hearing
 - voice
 - communication
 - swallowing
- typical development
- particular impairments
- assessment
- intervention



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- In-depth assessments concerning:
 - identification of existence, severity and type of communication problems
 - detailed description of abilities and difficulties to guide intervention
 - understanding how other development problems can impact or interact with communicative development
 - Participation in differential diagnoses
 - Referrals to other professionals

Teamwork

- SLPs work in collaboration with families, significant people in the child's life and other professionals
e.g. audiologists, physiotherapists, occupational therapists, social workers, psychologist / neuropsychologists, early interventionists, preschool teachers, daycare workers, teachers of the deaf, doctors (including ENT, pediatricians, psychiatrists), nurses, infant development consultants, etc.
- Such collaborations benefit the child/family, SLPs and other professionals





Two important goals of assessment

1. To determine the child's 'position' in the sequence of development
2. To determine factors that bear on that child's development

e.g. Johnston J. (2005) *Factors that influence language development*



A few precautions

- Even though one difficulty may seem to predominate or be the only concern of parent or other adult, **it is usually wise to get as much information regarding the other areas of communication as possible.**
- Beyond communication, anything can coexist. Need to look beyond communication.
- **Any time** communication development is delayed, ***refer to audiology*** for hearing assessment
- Important to observe child's communicative functioning in different contexts (place, person, task)

Hearing and Communication

The background of the slide is a green chalkboard. In the lower-left quadrant, two pieces of pink chalk are lying on the surface. One piece is standing upright, while the other is lying horizontally next to it. Faint white chalk drawings are visible on the board, including a large 'C' shape on the left, a large 'Y' shape in the center, and a large 'A' shape at the bottom. The overall lighting is soft, and the colors are muted.

What does hearing have to do with a child's language development?

Why is identifying hearing impairment so important?

- Without access to hearing the child may not be developing language skills, unless these children are born into families with deaf signing adults.
- Without language development the following will be delayed:
 - Literacy skills
 - Social language skills
 - Language-based cognition skills
 - Speech development
 - Vocal use development



Hearing (cont)

- Without stimulation of the auditory nervous system, what can happen:
 - Awareness and detection of sounds is not possible
 - Auditory memory is not developed
 - Limits future possibility for hearing (e.g. for being able to access technology like cochlear implants)



Common issues of hearing loss in the preschool population

- Prevalence
- Newborn hearing screening
- Problem of late diagnosis
- Otitis media
- Intermittent hearing loss
- Sensorineural hearing loss
- Important changes with cochlear implants



Hearing screening

- Hearing screening:
 - Performed by the SLP in a health unit setting
 - Simple 10 minute screening to assess if a further hearing assessment by an audiologist is warranted
- What to look for and other information
www.canadianaudiology.ca/Consumer-Information/hearing-month/press-release.html

Warning Signs for Hearing Loss!

- Stops early babbling
- Experiences fluid drain from ears
- Frequently pulls at his/her ears (with fever or crankiness)
- Frequently gets colds and ear infections
- Does not understand someone unless he/she is facing them
- Speaks loudly or turns up the volume of the television or radio, disturbing other listeners
- Does not say single words by 12-15 months
- Does not respond when called
- Needs things to be repeated

CASLPA Fact sheet on Hearing health for children.

Available at www.caslpa.ca

What causes hearing loss?

- Many causes of hearing loss

Slides

- Main types:
 - conductive (external or middle ear is affected)
 - sensorineural (inner ear or auditory nerve is affected)
- Sensorineural or inner ear hearing loss is the main type of profound hearing loss

What do we hear?

SLIDES:

- Audiogram
- Audiogram of Familiar Sounds
- Hearing Threshold

References

- Marschark, M. & Spencer, P.A. (eds), (2003). *Oxford Handbook of Deaf Studies, Language, and Education*. New York: Oxford University Press
- Moore, D.F. (ed), (2001). *Educating the Deaf: Psychology, Principles, and Practices*. (5th ed.) Boston: Houghton Mifflin Co.
- Schirmer, B.R. (2000). *Language and Literacy Development in Children Who are Deaf*. (2nd ed.) Boston: Allyn & Bacon

The Oral-written Language Continuum

Alphabet = A Window
to the World



Functions of Print

- Can substitute for spoken messages
- Source of information
- Social messages
- Memory support
- Means of self expression
- Acquisition of new knowledge
- Classification of ownership
- Source of entertainment



Book-reading

- Hypothesis:
Children who have more extensive exposure to decontextualized language do better at school



Information through Print

- Pictures present the physical features of the concept, print does not
- Numbers and letters are different
- Letters put together make words
- The same letter can be repeated within a word
- Direction matters
- Beyond the idea that the first letter carries the meaning of words
- Words have constant meaning
- Learning about the function of blank spaces



Phonological awareness

- Definition:
 - A person's awareness that spoken words are made of sounds and can be segmented using different units (Adams, 1990).
- Levels of analysis:
 - Syllable (*cat, string, wig-wam*)
 - onset and rime (Treiman & Zukowski, 1991) (*c-at, str-ing, w-ig-w-am*)
 - Phoneme (*c-a-t, s-t-r-i-ŋ, w-i-g-w-a-m*)

Language Development in Multilingual and Culturally Diverse Societies

School Readiness in ESL-learning children



Multilingual Children

- Who are they?
 - Bilingual French-English
 - ESL
 - First Nations
 - Other



Definitions of Bilingualism

- Different meanings to different people
 - Full fluency in two languages (Bloomfield, 1933)
 - Someone who can function in each of two (or more) languages according to their needs (Grosjean, 1989)
 - Someone who has just begun to acquire proficiency in a second language



Language Loss

- Children DO lose a language that has not been used for a while
- It will depend on the duration of absence of the language
- Literacy has a huge impact on language loss
- Bilingual proficiency is as much a socio-linguistic phenomenon as psycholinguistic
 - 2-3 year olds are not susceptible to status differences, but they tend to speak the language of the environment





Normal Developmental Phenomena for both monolingual and bilingual children

- Late onset of speech relative to other children
- Disfluencies
- Apparent regression (short-lived)
- Overgeneralization

Similarities far more striking than differences!



Normal Developmental Phenomena for bilingual children

- Mute period
- Code-switching
- Refusal or disinclination to use one language for periods of time
- Overgeneralization from one language to the other



Advantages/Disadvantages for Bilingualism

- Earlier and greater awareness of the arbitrariness of language
- Earlier separation of meaning from sound
- Greater social sensitivity
- Greater adeptness at divergent and convergent thinking
- Greater adeptness at creative thinking
- Greater facility with concept formation
- Weaker vocabulary acquisition, but . . .

Bilingualism and Literacy Development

- Students who have been exposed to literacy in the L1 – more complex
 - Different levels of literacy instruction
 - Different experiences with literacy in L1



Transfer of Literacy Skills

- L1 literacy proficiency is a good predictor of L2 literacy proficiency
- Good L2 readers use the same reading strategies as good L1 readers
- Younger learners do not rely only on the L1, use knowledge of the L2
- With greater L2 proficiency, students learn to rely on higher order processing in the L2



Difference, delay, or disorder?

- *A BIG question!*
- *Ironically this population is subject to both*
 - **Over-diagnosis** of language problems in children from minority backgrounds (low SES, Native, bilingual, ESL) who exhibit language differences or simply need more time /opportunity to be proficient in English
 - **Under-diagnosis** i.e. assuming that language difference or delay in a a child is entirely attributable to the fact that he or she belongs to a particular social or ethnic group, is bilingual or is learning ESL

Assessment of Bilingual Children

- Recommended approach
 - To establish that language performance in the first and longer established language is developing typically and is similar to that of bilingual peers (Duncan, 1989)



Informed Recommendations

- Bilingualism does **not** cause language-impairment
- Parents should **not** be told to speak to their children only in English, if this is not their dominant/native language
- Parents should be encouraged to use language in which they are most comfortable and fluent, and hence provide optimal language models and foundations for strong development of L1

First Nations English dialects

The background of the slide is a green chalkboard. Two pieces of pink chalk are lying on the board, one standing upright and one lying horizontally. There are faint white chalk markings on the board, including a large 'Y' shape and some curved lines.

Based on pilot work by
Barbara Bernhardt, UBC

Jessica Ball, Uvic

Jeff Deby, UBC

and initiated by Laura Fraser, Nuuchahnulth
(Victoria)

Overview

- There are growing concerns about the lack of information regarding English language development in First Nations children
- This lack of information **makes it difficult for practitioners to distinguish between language impairment and language difference in First Nations children, resulting in over-diagnosis or under-diagnosis of impairment.**
 - *Similar to case of multilingual children*

Project activities so far

- Two forums including First Nations educators, speech-language pathologists, linguists, administrators (Feb/Nov 2004)
- Literature reviews of similar studies in Australia, New Zealand and the US
- Development of proceedings, preliminary guidelines for SLP practice, future research ideas

What is “dialect”?

- What we call ‘English’ is actually a *large* collection of **dialects**
 - e.g., CBC English, African-American Vernacular English, New Zealand English, Queen’s English
- Distinctive varieties of English are spoken by Indigenous **peoples** in former British colonies
- These Indigenous Englishes include both grammar and cultural norms of language use

Indigenous English dialects remain under-described!



Supporting language learning in the FN context

- Family-centred and individualized
- Based on what is average and functional within the child's family and speech community
 - Standard English might be inappropriate at home, symbolizing a rejection of cultural norms
 - A family may wish a child to become bi-dialectal through a program such as Standard English as a Second Dialect program, which teaches both dialects and the contexts of use.

The “Gold Standard”?

Which dialect is golden?

- Children may actually function well using their First Nations English dialect, once other dialect communities learn more about their dialect.
- CBC English: one possible gold standard, but **MOST DEFINITELY** not the only one



Thank you!

Please contact us with questions or comments:

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