Speech & Language
The Non-Verbal Child

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Overview

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Introduction

A little about myself...

Development of Foundational Language Skills

Speech Sound & Oral-Motor Development Begins

Birth to 3 Months

Cooing to communicate pleasure
Differential crying to communicate needs
Smiles
Imitation of mouth opening and closing, tongue protrusion (Meltzoff & Moore, 1989)

Speech & Linguistic Intent Develop

4 to 6 months

Babbling begins to include sounds such as /p/, /b/, /m/
Real laughing (not a gas bubble)
Vocalizes approval or disapproval
Produces sounds when playing

Intent Begins to Transition into Language

7 months to 1 year

Reduplicated Babbling (e.g., baba googoo dada)
Begins to use words to communicate wants and needs or to gain attention
Pairing gesture with verbal communication (i.e., verbalizations of actual words
Imitating speech sounds
Has some words, but will likely contain age appropriate errors in speech production

Speech Sound Development

Speech Sound Norms taken from the Goldman-Fristoe Test of Articulation-2 from 2000.

Age	Initial Sound	Medial Sound	Final Sound
2 years	/b/ /d/ /h/ /m/ /n/ /p/	/b/ /m/ /n/	/m/ /p/
3 years	/f/ /g/ /k/ /t/ /w/	/f/ /g/ /k/ /ng/ /p/ /t/	/b/ /d/ /g/ /k/ /n/ /t/
4 years	/no/	/t/	/f/
5 years	ch /j/ /v/ /z/ y /bl/	ch /j/ /v/ /z/ /r/	/f/ /ng/ ch /sh/ /v/ /w/ /z/
6 years	/s/ /r/ /bm/ /bl/ /f/ /fr/ /gl/ /gr/ /br/ /br/ /pl/ /sl/ /tr/	/r/ /v/	
7 years	/s/ /sl/ /sp/ /sw/ th	th	th

This table is the age at which 85% of the GFTA-2 Standardization Sample correctly produced the consonants and consonant cluster sounds.

Sentence Level Language Develops

Between 1 and 2 years, a child should:
- Follow one-two step directions
- Answer basic questions (e.g., where is your nose?)
- Able to two word combinations to express herself (e.g., mommy go, help me, no bed)
- Make requests (e.g., "want cookie")
- Begins demonstrating pre-literacy skills and engaging in "reading time"
- Engages in singing songs with finger play

By age three, a child typically has a solid command of language and is able to express themselves with little difficulty.

Social Language Development

Social Language Milestones

(HENDRIX, PALMER, TARSHIS, & WINNER, 2012)

Development of Verbal and Non-Verbal/Verbal Language

Common Language Disorders Associated with DCC

Auditory Processing Disorders

"APD refers to how the central nervous system (CNS) uses auditory information." (ASHA, 2014)

Is the brain hearing? What is it doing with the sound signal it receives?

Diagnosed by an Audiologist

Speech-Language Pathologists look at how the sound processing deficit impacts the ability to access phonological (i.e., sound-level) information, whether or not the brain is able to hear boundaries between sounds and fully access the nuances of spoken information, especially as it increases in length and complexity

Motor Speech Disorders: Phonological Processes

Phonological Processes or Deviations are the errors made by *all* children developing speech.

This becomes a disorder when these errors do not fade as the child develops language

The most common phonological process are:
  Prevocalic Voicing
  Word final devoicing
  Final consonant deletion
  Velar fronting
  Palatal fronting
  Consonant harmony
  Weak syllable deletion
  Cluster reduction
  Gliding of liquids
  Stopping

Motor Speech Disorders: Phonological Processes

Most of these errors should disappear by age 5

Phonological Processes that become disorders impact
  Development of phonological awareness skills which are the foundation of reading development
    Sound Discrimination
    Rhyming
    Sound Segmentation
    Sound Blending
    Sound Manipulation
  Development of written language skills
  Social Skills

Motor Speech Disorders: Dysarthria

Dysarthria is a motor speech disorder characterized by decreased muscle tone in the oral motor mechanism

Can be neurogenic (e.g., Cerebral Palsy, Parkinson's Disease) or the result of a brain trauma (e.g., stroke, traumatic brain injury)

Characterized by:
   Slow and/or slurred speech
   Decreased movement of the oral motor mechanism
   Weak Vocalization
   Drooling
   Difficulty with feeding (e.g., chewing and swallowing)

Motor Speech Disorders: Verbal Apraxia

Also referred to as Childhood Apraxia of Speech

Verbal Apraxia is a neurogenic motor speech disorder which impacts the brain's ability to coordinate and sequence the movements of the oral motor mechanism (i.e., lips, tongue, jaw)

Characterized by:
   A lack of oral motor coordination and control
   A lack or decreased production of speech
   Difficulty with the accuracy of manner and placement for the production of speech sounds
   Difficulty with the prosody or "rhythm" of language
   Groping or grimacing behaviors
   Difficulty with autonomic motor movements (e.g., drinking, swallowing)

Motor Speech Disorders: Verbal Apraxia

With Verbal Apraxia, you may see:
   Inability to speak or produce meaningful vocalizations
   Increased frustration
   Difficulty producing language in on-demand or emotional situations
   Difficulty sequencing other motor movements
   Expressive language disorders
      Word Retrieval
      Processing phonological or sound based information
      Syntax
   Difficulty managing saliva
   Inconsistent ability to imitate and produce sounds
   Difficulty with non-verbal tasks (e.g., blowing bubbles)
   Difficulty drinking out of a cup

Receptive and Expressive Oral Language Deficits

Vocabulary Development

How developed is your child's lexicon?

Are they able to use all of the words they understand?

A gap or deficit in this area will impact your child's ability to communicate basic wants and needs

Can Lead to frustration

Receptive and Expressive Oral Language Deficits

Word Retrieval

The brain's ability to find and express a specific word

We all have difficulty retrieving words, especially when we are tired

"It's on the tip of my tongue!"

Can be exceedingly frustrating for a child with a limited expressive vocabulary, or a child who is trying to express themselves.

Receptive Oral Language Deficits

Processing of Receptive Language

How does this differ from auditory processing?

Receptive Syntax

The ability to understand all aspects of sentence structure

Does my child conceptually understand comparative adjectives?

Does my child have a conceptual understanding of prepositions? Can she access this knowledge when it is imbedded in a prepositional phrase?

Expressive Oral Language Deficits

Morphological and Syntactic Weaknesses

Expressive Language Formulation
Can I apply my understanding of word meaning, word structure, and sentence structure and use these skills together automatically to produce an intact sentence?
Does the complexity of this task make it harder for me to retrieve words?

Expressive Oral language Organization
Microstructures
Macrostructures

Reading Disorders

It's not just "Dyslexia"!

Phonological Awareness Skills
Important for the development of reading!
Auditory Processing Disorder
Verbal Apraxia

Decoding
The application of phonological, orthographic, and metalinguistic strategies to break down a word and then put it back together again to make sense of it

Linguistic aspects of executive Functioning can impact decoding!

Reading Disorders

Reading Fluency
The child's ability to efficiently and accurately read words in text of increasing length and complexity

Is your child able to apply strategies to read consistently?

Linguistic aspects of executive functioning can impact fluency as well!

Written Language Disorders

Written language develops in tandem with expressive oral language.

If a child has an expressive oral language disorder, it will impact written language.

Often more of a challenge given that there is an added motor component that must be integrated when expressing oneself through writing

Very Important for a child who may use a device

If there is an expressive language disorder, may experience the same frustrations communicating with a device

Social Pragmatic Language Deficits

The ability to apply receptive and expressive language skills to engage in and navigate social situations

Being social is also:

"Sharing space effectively with others."

(Hendrix, Palmer, Tarshis, & Winner, 2012)

Social Pragmatic Language Weaknesses

Children with social language challenges will sometimes have difficulty keeping up with the peers solely due to receptive and expressive language weaknesses

Others struggle with the above as well as the ability to "think socially"

Social thinking is:

"Thinking about what people are thinking even if we are not planning to talk to them." (Hendrix, Palmer, Tarshis, & Winner, 2012)

Executive Functioning Deficits

The brain's ability to use attention, working memory, and self-regulation to plan, initiate, execute, evaluate and problem-solve in order to complete a given task.

When there is a breakdown in the system, the effect can touch every aspect of a child's ability to function.

Executive Functioning Disorders

Impact Areas

Ability to function socially
Ability to function academically
Ability to regulate emotions and respond appropriately to what's been communicated in a given situation

The Role of the Speech-Language Pathologist

Speech-Language Pathologists Should Provide:

Assessment/Evaluation

Treatment

Consultation

Advocacy

How Do Should One Evaluate a Professional?

Examine Credentials

Can they provide evidence based explanations for their diagnoses and treatment plan? Do these echo language areas with which you have expressed concern?

What experience does the clinician have with this disorder?

What research based methodologies does the clinician use in treatment? How does the clinician individualize a program or treatment approach for your child?

How do you collect data and/or determine progress regarding a specific goal

Evidence Based Treatment Approaches

Evidence Based Treatment Approaches

What is Evidence Based Practice?

"Evidence-based medicine is the integration of best research evidence with clinical expertise and patient values." (Sackett D et al., 2000)

This means, you clinician should integrate research, expertise, and YOUR knowledge in order to provide the best treatment. Should also be able to recognize how to use this information to help your child function to the best of her capabilities by accessing her strengths

Evidence Based Therapeutic Approaches

PROMPT

Prompts for Restructuring Oral Muscular Phonetic Targets

"The technique is a tactile-kinesthetic approach that uses touch cues to a patient's articulators (jaw, tongue, lips) to manually guide them through a targeted word, phrase or sentence. The technique develops motor control and the development of proper oral muscular movements, while eliminating unnecessary muscle movements, such as jaw sliding and inadequate lip rounding."

Evidence Based Therapeutic Approaches

MindWing Concepts

Links oral receptive and expressive language development to literacy skills

Provides visual and manipulative tools to support comprehension, retention, written and oral expression
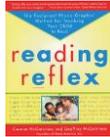
Evidence Based Therapeutic Approaches

Phonographix

Research based methodology for teaching sound-symbol recognition as well as the application of phonological awareness skills to the decoding of words.

Creates a systematic code for the English phonetic system where there really isn't one

Evidence Based Therapeutic Approaches

Social Thinking

Research based methodology for teaching children of all ages how to think socially

Michelle Garcia Winner and her team have provided curriculum to teach a variety of ages and profiles the abstract social concepts necessary to function socially
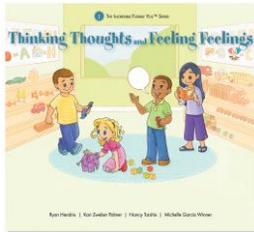
Assistive Technology

Assistive Technology

WIDE range of assistive technologies which cover all areas of language difficulties including augmentative and alternative communication

*It is important to note that assistive technology, including AAC, is meant to enhance an individuals communication and not necessarily **replace** it*

Assistive Technology

Whether looking for an AAC or a text to speech device to support a reading disorder, there is a process to ensure that your child received the best fit possible

Assessment

There are clinicians who specialize in finding the assistive technology which works best for your child

The clinicians should develop a plan with the specific devices/methods that should be used to enhance communication

Treatment

Systematic Instruction for the use of the device

If the device or approach is research based, there will be a specific systematic way to teach the use of the technology

Resources and References

Parent Resources

www.asha.org
Excellent place to start learning about the various aspects of speech, language, and hearing

www.socialthinking.com
Excellent research for the child having difficulty interpreting and using non-verbal and verbal language in social situations

mommyspeechtherapy.com/
Great resource for parents (dads included!)

www.earobics.com/
Auditory processing resource

References

Asha.org. American Speech-Language-Hearing Association. 1997-2014. Website. June, 2014.

Hendrix, Ryan, Kari Z. Palmer, Nancy Tarshis, and Michelle G. Winner. *The Incredible Flexible You*. Vol. 1. San Jose: Social Thinking, 2013.

Sackett D et al. Evidence-Based Medicine: How to Practice and Teach EBM, 2nd edition. Churchill Livingstone, Edinburgh, 2000, p.1.

Stickles, Judith. *Working with you Speech-Language Pathologist to Evaluate the Communication Skills of the Child with ACC.* The Callosal Connection. ACC Network. Orono, ME.

QUESTIONS?