Characteristics of Central Auditory Processing Disorders

1. Majority are male (75%)

2. Normal pure-tone hearing results

3. Difficulty following oral directions; inconsistent response to auditory stimuli

4. Short auditory attention span; fatigues easily during auditory tasks

5. Poor short-term and long-term memory

6. Gives impression of not listening even though looking at the speaker; daydreams

7. Difficulty listening in presence of background noise

8. Difficulty localizing sound

9. Academic deficits (phonics, reading, or spelling) and mild speech-language impairments

10. Disruptive behaviors—distracted, impulsive, frustrated

11. Frequent requests for verbal repetition or often saying "huh?"

12. History of otitis media

Characteristics of Language Processing Disorders

1. Problems with retrieval of common words

2. Use of neutral, generic, or less-specific labels

3. Misuse of words with a similar phonetic structure

4. Generating creative, original language terms; use of descriptions or circumlocutions

5. Response latency; use of fillers to buy time

6. Frequent "I don't know" or "I forgot" responses

7. Verbal repetition or rehearsal

8. Inconsistency in learning; requires extensive review of previously-learned material

9. Recognizes language errors but can't fix them

10. Incomplete sentences or thoughts

11. Pragmatic problems; disruptive behavior

12. Age-commensurate IQ and vocabulary with academic deficits; *learning disability* label

Preschool Precursors for Language Processing Problems

1. Poor sequencing in both receptive and expressive language
2. Slow acquisition of vocabulary and concepts
3. Ineffective short-term memory
4. Slow receptive and expressive acquisition of *Wh-* question forms
5. Delayed articulation/phonological development
6. Significant word retrieval problems
7. Slow syntactic development with persistent error patterns
8. Slow pragmatic development with poor awareness of conversational rules

1. Poor sequencing in both receptive and expressive language

Poor verbal organization can be a significant signal for language processing problems. How is this demonstrated in a preschool child? Ask him about the Disney movie he just saw. He might tell you the ending, then the plot, then the characters, then something from the beginning, etc. If you find yourself asking lots of questions to sort out the sequence, then you have just experienced poor expressive sequencing skills. Receptive sequencing would be shown if a child has trouble learning things in order, such as the child's address, phone number, rote counting, and the alphabet.

2. Slow acquisition of vocabulary and concepts

Delayed vocabulary and concept acquisition are relatively easy to spot on a receptive or expressive vocabulary test, such as the *Peabody Picture Vocabulary Test* or the *Receptive/Expressive One Word Picture Vocabulary Test*. A child with a language processing disorder may drive you crazy as you try to secure a basal and ceiling. You start at what you think is an appropriate level, but you can't get a basal until you have gone all the way back to the beginning. As you work toward a ceiling, the child is getting tired. You count in your head and think *one more,* but the child gets it right, so you have to go on. After more bribes, you think you have a ceiling again—only to have the child pull one out, so you have to keep going. It seems like you go on forever and feel pretty good as the child is now way above her age. When you score the test later, there are so many errors that the child's performance comes out low average or borderline.

Language processing assessment should isolate discrete language skills, evaluating secondary zone temporal lobe association abilities, and then progressing to tertiary zone integration language skills. A neurological hierarchy should be utilized to impose a more objective approach to language processing assessment.

Prerequisites for Language Processing Assessment

Three requirements must be met in order to accurately interpret performance deficits as a language processing disorder:

1. The acoustic signal has been received intactly in the cortex (primary zone assessment).

2. The child has normal/near-normal acquisition of basic receptive/expressive language skills.

3. The child has normal/near-normal intellectual functioning.

Language processing presumes that auditory information has been received accurately in the primary zone of the temporal lobe. The deficit occurs as the child attempts to attach meaning in an increased hierarchy of linguistic difficulty. If the signal has been distorted or compromised before it reaches the secondary zone for language processing, the impaired stimulus may be creating the difficulty in adequately attaching meaning.

The processing continuum assumes that the individual has acquired the prerequisite linguistic knowledge to attach meaning to the auditory signal. Basic vocabulary knowledge should be approximately age commensurate as measured on a receptive vocabulary test, such as the *Peabody Picture Vocabulary Test-Revised* (PPVT) or the *Receptive One Word Picture Vocabulary Test* (ROWPVT). A child must have developed a lexicon of nouns or a basic object vocabulary to attach increased levels of meaning to the term. If the child's basic vocabulary is in deficit, then a language *acquisition* problem exists, not a language processing problem. Language processing occurs on top of or in addition to basic language acquisition.

When cognitive development is impaired, the level of language processing should be commensurate with the mental or functioning age of the child. It is not accurate to say that a child who is chronologically ten years old with a mental age of five should be processing language at a level equal to ten years. The general language functioning age is the level of expectation for processing ability. It is not possible to exceed the language developmental age since processing is conducted on the linguistic developmental knowledge.

The speech-language pathologist must use knowledge of language to determine an appropriate order for language processing goals. The goals are the same as always. The materials can be the same. The difference is the hierarchical order in which the language goals are addressed.

Guidelines for Language Processing Therapy

The following list provides general guidelines to follow when designing language processing remediation.

- **Use results from the *Language Processing Test (LPT)* or a similar assessment to determine the level of language processing development.** This is a critical, important step. Assessment must sample discrete language skills to evaluate varying levels of language complexity. The level of competence and level of breakdown or difficulty are both important. The clinician must know what types of language processing tasks a child can competently do and which ones are in deficit.

- **Begin at the earliest level at which difficulty was encountered, regardless of whether or not higher level skills were intact.** I have seen students struggle to complete the Association and Categorization subtests on the *LPT,* but sail through Similarity and Difference. On Attributes, they provide one or two low-level features per item. Usually they've been in therapy and someone targeted Similarity and Difference without building language processing skills around the task. A splinter skill has been trained, but the child can't apply or use it because other adjunct language areas have not been addressed.

- **Begin at the first level of difficulty, and solidify that language processing skill before progressing to the next one.** Attributes is telling you that the child is not able to attach complex levels of meaning independently. If the child simply had a weakness at the early levels and the next levels are intact, then you progress quickly, but you take the time to fill in the holes!

- **Use the entire second functional unit to approach intervention, gradually moving toward auditory input only.** Always introduce language processing therapy materials with stimuli to all three lobes (occipital, parietal, and temporal) to facilitate successful processing. Once the cognitive language task is being handled, remove physical (parietal) input and retain visual and auditory stimuli. Once the task is being successfully handled in two-modality presentation, remove visual cues (occipital), and see if the student can successfully process the task from auditory stimuli only (temporal). That's always the goal, but that isn't where teaching starts; it works gradually to groove in the neurological connections to process language successfully, using strengths to overcome weaknesses.