SPEECH PATHOLOGY SERVICES AND THEIR RELATIONSHIP TO APT TESTING

HOW THE CELF-4 CORRELATES TO THE APT TEST BATTERY

LANGUAGE DEFINED

- The implications of a language disorder on an individual are unimaginable.
- Language enables us to become a part of our world. Without language in any form, we have no means of developing ideas, formulating complex thoughts, expressing ideas, painting beautiful works of art, sculpting, etc.
- LANGUAGE is the essence of ART and CULTURE.
- Language is the embodiment of who we are and how we define ourselves as humans.

- Language develops very early in the child. Receptive language begins quickly as the child becomes part of his environment in his home. He hears music, laughter, sounds that become part of his world and enable him to recognize and adapt.
- It becomes a part of his environment as he begins to interact by crying or moving or babbling, etc.
- His world begins to expand as he begins a more exploratory approach to conquering it.
- The more he moves through his world the more language becomes important.

- The child now needs language to define his world as he explores it.
- He looks to his family as the integral part of his language system in his early years. This is where the foundations of language begin.
- The play, the books, the movement, the music, the crayons – are all his world of experience that create a viable language system in a child.
- There are many reasons for a language system to falter.

SOME REASONS FOR DELAYS

- Genetic Syndromes – such as Fragile X Syndrome
- Autism Spectrum Disorder
- Language and learning problems in families – FOXP2
- Down's Syndrome
- Congenital Syndromes that cause Hearing Loss
- Apraxia of Speech
- Fetal Alcohol Syndrome
- There's always the language disorder with unspecified cause.

Our Team

- Once that child crosses our threshold, he becomes our responsibility to treat.
- We evaluate, send to specialists, and treat.
- It is so important for the chain not to be broken.
- We must never think we are the sole answer to the child's problem. We must always put our egos aside and treat the family and child with care as a team.
- We are about the "TEAM" of which the parent is a member.
- Our team is the Primary Doctor, the Pediatric Developmentalist, the Psychologist, the Speech Pathologist, the Audiologist, the PT, OT, Teacher, and Parent.

DIAGNOSIS

- Our first step is obviously the Evaluation process.
- With the use of the CELF-4, we are able to clearly define specific linguistic areas of need and correlate them with the APT subtests. It all becomes the TEAM, from the beginning.
- If the APT comes first, then the referral goes to the speech pathologist for further clarification to define the linguistic parts that could be assumed by the APT results.
- The CELF was chosen by this therapist as the most comprehensive test battery of non-contextual test information.

OTHER THAN THE CELF

- If we , as speech pathologists were to assess a child out of context through the CELF, then the next step in my process is to assess the child through diagnostic therapy and “in context”. This is where the process really begins.
- It’s the ability of the therapist to use the linguistic elements of the CELF to explore the contextual world of the child and then define the balance and begin treatment.
- Sometimes an informal Language Sample Analysis is completed and sometimes a formal “LSA” is performed through instruments like the SALT (Systematic Analysis of Language Transcripts).

- The CELF enables the therapist to find the most specific linguistic deficits and provide a plan of action for the parents, school, and client.
- This test is the cornerstone of language analysis that has the specific ability to correlate with the subtests of the APT battery.
- For Example: The Dichotic Listening subtests of Competing Words and Competing Sentences will help the Audiologist ascertain if a possible language disorder exists if the Left Ear is dominant, it may show a left brain weakness, hence a possible language disorder and “red flag” for referral to speech pathologist.

- Working memory is also defined by various subtests of the APT which then correlate with the linguistically-bound working memory subtests of the CELF.
- Some subtests of the CELF are not as linguistically bound as others but test working memory such as: Rapid Automatic Naming, Number Repetition (forward and backward), Word Association (which accounts for a child's semantic memory of specific items in his world).
- Integration is the ability to process information using different modalities (auditory/visual). Following Directions/Concepts subtest of CELF uses aspects of working memory, but also 'integration'. Motor issues are also related as the child points to items upon verbal commands. Crossing mid-line is also an issue and referral to OT may be needed as the therapist skillfully watches responses by the child.

THE CELF-4 Subtests and the APT Battery

- The CELF-4 is the most comprehensive test of language. Dr. Elizabeth Wiig formulated the first CELF over 25 years ago. I have used it in various forms since it came on the market.
- This test is the cornerstone of language analysis that has the ability to correlate with the various subtests of the APT and formulate a therapy plan incorporating language and processing issues.
- Subtests such as: Recalling Sentences and Formulating Sentences are examples of working memory for linguistic information. These tell language therapists the exact elements that are not developed or utilized by the child.

As per Dr. Wiig

- Dr. Wiig Stated in a recent in-service she presented for Pearson Educational "if a child is using "fillers" in his expressive language , he has working memory issues. If he is "slow to process" verbally presented information, the Rapid Automatic Naming subtest should be given."
- She stated that Reading, Writing, Study Skills issues reveal "executive functioning" issues which will result in suppressed scores of the "Formulated Sentences" subtest.
- The Word Association subtest reveals working memory and frontal lobe issues.

- She further stated that the “formulated sentences” subtest is a memory task using the targeted word and illustration to provide a syntactic structure that imbeds the stimulus word. This implies “functional working memory.” It also reveals possible visual perception issues, visual figure ground issues, and the syntactic use and memory needed to provide a meaningful utterance.
- She feels that the Word Associations subtest may reveal “neuro-psychological issues” as it effects the child’s ability to retrieve from long-term memory. She also feels that semantic memory is involved.
- The Recalling Sentences results could reveal Auditory Processing issues. It involves working memory as it is linked to sentence length and syntactic complexity. It is a function of immediate memory. The imbedded sentences become the most difficult for a child with a language disorder. She stated that “you can’t increase memory, but you can increase “chunks” as you try to expand the linguistic system using more modifiers, adverbs, etc, to increase syntactically the size of the linguistic units.”

- Other APT subtests that could be a sign of language disorder are: Phonemic Synthesis, SSW, Pitch Pattern Sequence Test
- SCAN – Auditory – Figure Ground, and Auditory Integration
- RANS – integration of visual information, language
- Auditory Continuous Test – Auditory attention/vigilance

- The following subtest of the CELF-4 mesh with the APT to form a continuum of care for our clients.
- The CORE subtests are as follows:
- Following Directions/Concepts; Recalling Sentences; Word Structure; and Formulating Sentences
- Additional subtests that add validity are: Word Classes, Understanding Spoken Paragraphs, and Expressive Vocabulary.

- The Following Directions/Concepts subtest requires the client to point to various visual stimuli in the order requested from a verbal command. So the process of correlation begins. Visual integration, auditory integration, sequencing, visual figure ground, auditory figure ground (background noise in office), receptive knowledge of vocabulary used and ability to fine tune the physical effort of pointing at the same time he is processing the information and trying to hold it through his working memory long enough to complete the command.
- Now we see what that child does in the classroom. One of the first questions I ask the child before testing begins is: " Do you have difficulty following the teacher's commands in class?" I always say "It's ok to say there is a problem because I'm here to help."
- BINGO!!! The process begins, not that far into the test we see a problem as the child struggles through this subtest. Head down, dejected, wondering when this will end, and we've only just begun. That is why I test over more than one session. It's valid, and gives a better reading without fatigue.

- The Word Structure subtest deals with the grammatic elements of language – specific to verb tense; plurals; copula “is”, “are”; “is” and “are” + “ing”; possessive nouns; regular past tense; future tense; pronouns; irregular past tense. This is a component that defines the expressive problems specific to “apraxia of speech.”
- Many parents do not give adequate case history information and “apraxia” is relevant. It effects a child in unimaginable ways regarding fine motor, speech production, grammar, self-image.
- This subtest is part of the CORE group that begins the process of specifying the linguistic elements that are in jeopardy.

- The Recalling Sentences subtest implies “working memory” related to linguistic structure. The depth of the structure increases as the test progresses. Each sentence provides a series of specific linguistic elements that are tested.
- The Formulated Sentences subtest implies the abstraction of linguistic structures. It provides information related to the child’s ability to hear the word, look at a picture stimulus, and then use the word in a sentence. The stimulus words are different linguistic forms that provide the child the chance to form different complexities of sentence structure.

- The predominant question is: What actually is the reason for the Auditory Processing Disorder?
- Is it the language delay that causes the AP disorder or is the AP the reason for the language disorder?
- That is probably a question we will always ask. Speech pathologists will lean toward the delay due to language from early childhood or apraxia of speech.
- I do know that it has taken me years of practice and Liz's persistence for me to see the correlations between the test findings and that neither test procedure should be completed exclusively of the other.

CORE SUBTESTS COMPLETED

- Once the 4 CORE subtests are completed, there are additional subtests that could be given to further analyze the deficits of the child.
- I like using the receptive portion of the Word Classes subtest. It reveals to me the ability of the child to use "working memory" again as he recalls the 3 -4 words presented and then finds the 2 that have a relationship.
- This reveals his depth of understanding of vocabulary out of context, which to me is a truer analysis of vocabulary. It means the child is able to intellectualize the words presented and decipher their relationships.

- I like using Understanding Spoken Paragraphs because it enables me to see how the child is able to listen to major bites of linguistic information in paragraph form and then analyze the information enough to answer the questions about the paragraph. It is a subtest of “auditory comprehension of verbally presented information in paragraph form.”
- It also gives me an idea of how a child performs in the classroom when the teacher is presenting all varieties of verbal information in paragraphs.
- This also implies ability to understand vocabulary, word order in sentences, implied meaning, sequencing, understanding implications, and abstraction of information presented.

- The Phonological Awareness subtest is a companion to the Phonemic Synthesis subtest of the APT.
- It enables the therapist to define the following areas of concern related to understanding sounds and reading:
- Syllable blending, rhyme detection, initial phoneme identification, 2-syllable deletion, rhyme production, syllable segmentation, final phoneme identification, sentence segmentation, 3-syllable deletion, phoneme blending, final syllable deletion, medial phoneme identification, initial phoneme substitution, phoneme segmentation, initial phoneme deletion, medial phoneme substitution, final phoneme substitution.

- There are many other subtests of the CELF, but the therapist must use the subtests that help her define the child the best. I find that the more linguistic information discovered the better I treat the client.
- My definition or perception of the child may differ from another therapist, therefore another therapist may choose different subtests to define her client.
- I must admit that my definition of the child is best analyzed through diagnostic therapy.
- Time is an issue and only so much testing should be done. We have to treat the child as soon as possible.

- The CELF gives me a treatment pattern, but the pattern is fluid and will change as we spend more time with the child and see more needs that allow us to mold the linguistic behaviors.
- Remember, we expand structures. That is our goal.
- We expand in order to make our client more functional in his environment. It enables him to understand the world of verbalizations he hears all day, it enables him to express himself with more fluidity, it enables him to read and write with less energy and more fluidity.

CASE STUDY - NICHOLAS

- Nicholas was referred for a speech/language evaluation after his APT testing due to reading disorder in school.
- DIAGNOSES – childhood apraxia of speech, expressive language disorder in written and spoken language, reading disorder.
- When he first came, he was not diagnosed with apraxia, but it soon became evident.
- Apraxia has led to the other disorders noted above.
- His apraxia is so severe because he is 7 years old and just began intensive speech/language therapy with me 3 months age.

- He is unintelligible to most who meet him. His family will interpret for him. His parents thought he was “lazy”. However his mother was tired of his speech progress not changing through a once a week program in his school. He has had Early Intervention. His parents were told a familiar line “He will outgrow it.”
- Remember: “apraxic children do not outgrow it” it stays there forever, so it is best to send the child for a speech evaluation as early as possible (2 – 3 years old).

READING/WRITING/LANGUAGE

- It should be noted that development of reading/writing follows the same pattern as development of language.
- If we look at reading as the building blocks of written language, then we understand the importance of testing language in reading disordered children.
- We must look at the building blocks of language to ascertain the reasons for Auditory Processing deficits and reading disorders.

NOW THE TEAM EXPANDS

- What is important is the team effort to diagnose the child and find the right therapy process for the child.
- That therapy process can include: ST, PT, OT, reading therapy, and LD services.
- Therapy is multifaceted and should be a joint effort in providing the most effective treatment as a team for our clients.

Therapeutic Implications

- Most children with APT issues who have also tested for language problems are treated by a language therapist.
- The therapy is specific to the findings of the CELF and determinations of each subtest.
- It is important to understand that in spite of the APT findings of figure ground issues, the child still needs to learn to internally filter out the background noises.
- This is accomplished by strengthening his linguistic system.
- It becomes a compensatory process.

- The issue is that language needs to be contextual in order to carryover to the real world.
- Therefore, therapy should be contextually bound.
- Context includes – experiential information, pragmatics, literature (children's books), writing stories and generating pictures through art, etc.
- Pragmatics is a BIG piece of the puzzle and is always included in the therapy process.
- Literacy is the next BIG piece and is always part of the language learning process.