Hidden Language Disorders: Looking for a Needle in a Haystack

Hidden Language Disorders based in Language Processing: A Psychologist Point of View

“I use this term not as a diagnosis because as you know, there is no official diagnosis but as a way to explain the concerns I'm seeing. I usually recommend a full speech/language evaluation to fully understand what's going on. General processing speed might be slow, but usually if I think that general processing speed is the problem then I won't be concerned about language processing. For language processing, I'm noticing that receptive and expressive language are just much weaker than IQ would predict, and particularly higher-order, abstract oral comprehension seems to be a problem. The student also just can't seem to explain themselves as well as the IQ would again predict. When I can take language out of task, the student does much better. For example, they can categorize visually but not verbally. Oral reading speed usually is problematic, too; and observationally they seem to have to almost stare at the word before they can say it--not really a phonics issue but a retrieval issue. Short term visual memory may be better than short term verbal memory.” (Jennifer Horn, PhD, child psychologist)

Key Points from Dr. Horn:

- Receptive and expressive language are lower than what IQ would predict. (e.g.: Verbal IQ is within average range, but language achievement is low average to border line average)
- Oral reading fluency and accuracy is reduced
  - Appears to be more retrieval than phonological awareness

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- Reduced short term verbal memory (executive function)
- On tasks that do not require language, student performs better (see next page re: WISC V)

The Wechsler Intelligence Scale for Children – V (WISC-V), a measure of intellectual abilities, produces an overall full scale IQ score and five cognitive domain scores. The full scale IQ (FSIQ) reflects general intellectual functioning. (☆ does not require as much language processing)

- ☆The Visual Spatial Index (VSI) taps the ability to evaluate visual details and understand visual spatial relationships, and it involves visual spatial reasoning
- ☆The Fluid Reasoning Index (FRI) assesses visual conceptual reasoning and involves both inductive reasoning and simultaneous processing.
- ☆The Processing Speed Index (PSI) assesses visual identification and decision making speed, and it involves visual discrimination and temporary storage.

The above subtests can then be compared to task that require more language as these listed below.

- The Verbal Comprehension Index (VCI) assesses acquired word knowledge and involves verbal concept formation, verbal reasoning, and verbal expression.
- The Working Memory Index (WMI) taps holding and manipulating visual and auditory information in mind, and it involves concentration and memory.
Further Information from Dr. Horn

“I also look at a couple subtest comparisons, too. For example, Picture Concepts and Similarities both measure abstract reasoning, but the former has little language processing and the latter has a lot of language processing. And, Vocabulary and Comprehension require more language processing than Similarities. Third, Matrix Reasoning takes some language processing to understand what to do, so I look at whether they had trouble grasping what to do in the practice items; whereas, Block Design requires almost no language processing to grasp.

Definitions:

- Language processing refers to the use of words to communicate ideas and feelings, and how such communications are processed and understood. Thus, it is how the brain creates and understands language.
- Language processing is how one perceives, recognizes, understands and remembers sounds, words, and sentences

Signs and Symptoms

- Has age commensurate IQ and vocabulary skills with academic deficits; often receives a learning disability label.
- Has difficulty gaining meaning from spoken language
  - Phonemic awareness
  - Difficulty with complex syntax
  - Metalinguistic skills
- Demonstrates poor written output
• Shows difficulty expressing thoughts in verbal form
• Uses incomplete sentences or thoughts
• May take longer to formulate thoughts
• Is often frustrated by having a lot to say and no way to say it (retrieval)
• Difficulty with social pragmatic language
  o Jokes
  o Figurative language
  o Processing time
• Has difficulty with higher order language skills (metalinguistic skills)
• May have difficulty time management, organization skills, working memory, and sustained attention (executive function)
The Linguistic, Cognitive, and Perceptual Pieces of Language Processing: A Hidden Language Disorder

Adapted from: Macner, Hertel, and Foster, ASHA, 2007

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Hidden Language Disorder #1: Semantic Retrieval

Great Resource for word lists for Tier I, II, and III: www.marzanoresearch.com

Semantic retrieval is an expressive language disorder that impacts the retrieval of words in the presence of good comprehension of the words that they are unable to find. The words are stored in long term memory but cannot be quickly retrieved. They appear not to know answers when in reality they know, but are unable to express their knowledge. These students may exhibit problems retrieving specific words in single word retrieval contexts and in discourse - Diane German, Ph.D.

www.wordfinding.com
What standardized test do you have to evaluate vocabulary and retrieval?

- The Test of Word Finding 3 (TWF 3)
- The Listening Comprehension Test (Semantics)
- Expressive One Word Picture Vocabulary Test 4 (EOWPVT 4)
- Receptive One Word Picture Vocabulary Test 4 (ROWPVT 4)
- Expressive Vocabulary Test 2 (EVT 2)
- Peabody Picture Vocabulary Test 4 (PPVT 4)

Using a Discrepancy Model for Word Finding

1. Administer either the ROWPVT 4 or the PPVT 4
2. Administer the EOWPVT 4 or the EVT 2
3. Document responses that are incorrect then corrected through either self correction or phonemic cue. Document any response that takes longer than 4 seconds to retrieve.
4. Score both tests.
5. Compare the difference between the standardized score by using the discrepancy charts in the manual.

“FROM THE EOWPVT 4 MANUAL: ‘lower performance on the EOWPVT as compared to the ROWPVT 4 could mean that the individual has word retrieval difficulties that affect the extent of his or her speaking vocabulary relative to the extent of the individual’s hearing vocabulary.’”

For Preschool through 2nd grade: Turn the expressive task into a receptive task.
“Show me the one that is yellow.” “Show me the square.” “Show me which one says ‘b’. “Show me the letter B.” “Show me where in the story it tells where they are going.”
Characteristics of difficulty with semantic retrieval

- Understands the word but may have difficulty quickly retrieving in single word responses and in conversations
- Uses generic language instead of a specific word (e.g. saying “the thing” instead of “the notebook”)
- Taking a long time to respond to a question (?retrieval or processing time)
- May name a general category instead of a specific word (e.g. saying “food” instead of “cake”)
- May use descriptions instead of the intended word (e.g. saying “the yellow thing for writing” instead of “pencil”)
- Being quick to say “I don’t know” in response to a question
- Retrieval
  - Has difficulty labeling objects
  - Feels that words are “right on the tip of my tongue” (retrieval)
  - Can describe an object and draw it, but can’t think of the word for it (retrieval)

Its Impact: Will appear to know information one minute or one day but then appears to forget the information the next.

Preschool:
- Retrieving colors, shapes, familiar words
Learning to Read:
- Retrieving alphabet letters
- Retrieving sounds of alphabet letters
- Retrieving high frequency words
- Retrieval of spelling words during testing although was accurate during practice
- Retrieving math facts (orally and in writing)
- Slower reading fluency (can't quickly recall words when reading)
- Decreased accuracy when reading aloud (uses a familiar word that may begin with the same letter when can't quickly retrieve the word presented)
- Will raise his/her hand to answer a question then will respond, "I don't remember" or "I was going to say what she said."

Reading to Learn
- Written language expression that is decreased in complexity and length
- Inaccuracy during spelling tests continues
- Difficulty completing a test in the allotted time
- Better performance on matching, multiple choice and true and false tests.
- Worse performance on tests that require retrieval such as fill in the blank without a word bank and essay questions.
- More accurate reader when reading silently
- Keeping up with note taking during lecture
Semantic Retrieval Error Patterns

If a student has word finding difficulties, retrieval strength also needs to be targeted. Strategies should be matched to retrieval profile (Error pattern 1, 2, or 3).

Dr. German (2009) identifies three patterns of errors. These include:

- Error Pattern 1: “Slip of the Tongue” error. This type of error may indicate a failure to access the words semantic or syntactic features.
- Error Pattern 2: “Tip of the Tongue” error. This type of error results in a failure to access any of the word’s form information.
- Error Pattern 3: “Twist of the Tongue” error: This type of error results in an incomplete access to the word’s form, syllabic frame, or segmental sound content.

Preschool:
Error Patterns:
- Phonological (e.g., chicken for kitchen) or
- Semantic (e.g., key for door, playpen for crib), although indeterminate (e.g., thing),
- Visual misperception (e.g., lollipop for balloon)
- Perseverative responses (i.e., the same word used to label two different objects within a defined time interval)
  (Capone and McGregor, 2005)

Strategies for retrieving colors, shapes, familiar words

Colors
- Nursery rhymes, songs, or stories that link colors to meaning and provide picture representation
  - I.e.: Baa Baa Black Sheep
  - Brown Bear Brown Bear by Bill Martin Jr.
  - My Many Colored Days by Dr. Seuss
  - Music and Rhyme Station www.preschoolexpress.com
  - Ten Preschool Songs about Colors www.teachingmama.org
Shapes
- Link shapes to objects in the environment and link with a picture representation
  - Sun = circle
  - Window = square
- Books about shapes
  - Books of Shapes by Jenny Loveless
  - Shapes, Shapes, Shapes by Tana Hoben

Familiar Words
- Link a visual representation with the words
  - Make a book organized by category, function, or location

Review/Learn Vocabulary through Categories and Subcategories

![Diagram of kitchen with labeled appliances and utensils]

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Learning to Read:

- Decreased reading fluency and accuracy
  - Students with retrieval disorders will be slower and less accurate readers when reading aloud
- Will raise his/her hand to answer a question then will respond, "I don't remember" or "I was going to say what she said."

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STRATEGIES

- Retrieving alphabet letters and sounds
  - Use a visual phonics program that has multisensory input to aid retrieval
- Strong phonological awareness (segmenting, blending, manipulating) and phonics skills to serve as a backup when difficulty retrieving the spelling of a known word
- Make sure student knows the meaning of spelling and vocabulary words
- Retrieving math facts (orally and in writing)
  - Skip counting
  - Songs to learn math facts
    - https://www.youtube.com/watch?v=w1F0jDEzJRc
    - http://www.songsforteaching.com/mathsongs.htm
  - Touch Math www.touchmath.com
  - Practice, practice, practice (rehearse, rehearse, rehearse)
- Category, Function, Location

<table>
<thead>
<tr>
<th>Strategies for Word Retrieval</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category:</strong> classification</td>
</tr>
<tr>
<td><strong>Function:</strong> what it does or what is done with it</td>
</tr>
<tr>
<td><strong>Location/origin:</strong> where the item is found, stored or used</td>
</tr>
<tr>
<td><strong>Composition:</strong> what the item is made out of</td>
</tr>
<tr>
<td><strong>Components:</strong> attached parts</td>
</tr>
<tr>
<td><strong>Accessory/Necessity:</strong> associated objects or items that go with it</td>
</tr>
<tr>
<td><strong>Size/shape:</strong> size, length, width, height, shape or analogies made to size/shape</td>
</tr>
<tr>
<td><strong>Color:</strong> the basic colors that it has</td>
</tr>
<tr>
<td><strong>Gestures:</strong> movement of hands or body to describe (0 provides the most information to assist a child with word finding)</td>
</tr>
</tbody>
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• Games
  o Take turns describing something in the environment by using category, function, location first. (see card on previous page) Once the student is proficient in providing these cues, then begin to add level 2 and 3 cues
  o Zingo (Thinkfun) describe the tile instead of saying the name
  o Word on the Street (FFS LLC)
  o Educational Insights Blurt (The Jungle Store)
  o Hedbanz for Kids (Spin Masters Games)
  o Charades for Kids
  o Junior Pictionary (Mattel)

Reading to Learn:

• Word Retrieval APP by Virtual Speech

• Graphic Organizers:
  o Graphic organizers help students to visualize the relationships between words and their possible meanings to increase knowledge, storage, and retrieval.
  o Students must provide linguistic and nonlinguistic information in order to truly learn and retrieve new vocabulary.
  o Nonlinguistic can refer not only to mental pictures but also to smells, tastes, and kinesthetic sensations, such as how hot or cold something feels.
    ▪ Nonlinguistic strategies require students to generate a representation of new information that does not rely on language. In the hundreds of action research projects that we
have conducted with teachers throughout the years, this approach is one of the most commonly studied. Specifically, across 129 studies in which teachers used nonlinguistic strategies—such as graphic organizers, sketches, and pictographs—with one class but not with another class studying the same content, the average effect was a 17 percentile point gain in student achievement (Haystead & Marzano, 2009).

Frayer Model for Linguistic and Nonlinguistic Representation

**Vocabulary Worksheet**

<table>
<thead>
<tr>
<th>Name:</th>
<th>Class:</th>
<th>Score: <em><strong>/</strong></em></th>
</tr>
</thead>
</table>

Definition  
Facts/Characteristics  

Picture

Synonym  
Antonym
- Vocabulary/Retrieval/Study Strategy (available on Margo’s website)

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Root</th>
<th>Suffix</th>
<th>Part of Speech</th>
</tr>
</thead>
</table>

Description/Example

<table>
<thead>
<tr>
<th>Synonym</th>
<th>Antonym</th>
<th>Picture</th>
</tr>
</thead>
</table>

Dr. German’s Retrieval Strategy

- **Species**
- Syllables: __Spe__cies__
- speed
- cheese

Sentence: Lions are a species.

Specific Retrieval Strategies Based on Error Pattern:

Error Pattern 1: Semantic Retrieval

- Dual Focus: Storage and Retrieval
- Reflect before speaking
- Visualizing strategies
- Use a thesaurus to find correct word

Error Pattern 2: Tip of My Tongue (block)

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• Same sound cue (shown with Error Pattern I)
• Familiar word/phrase cue (blue sky for blue, baa baa black sheep for black, cumulate junk for cumulus)
• Thesaurus to find synonyms to assist in retrieving the correct word

Error Pattern 3: Phonological Naming

• Rhythm and Visual Syllable Dividing
• Same sound cue
• Rehearsal
• Phonological Naming (Retrieval)
  o Labeling letters
  o Providing sounds to go with the letters (Visual phonics program)
  o Matching phonemes and graphemes (sound – symbol)
  o Phonological Awareness: Segmenting syllables and sounds.
  o Tactile and visual cues to assist with segmenting

Classroom Suggestions

Error Pattern 1: Semantic Error

• Ask students to: Reflect and Rehearse the answer before raising their hands
• Have the student write down a word to help retrieve his/her response when called upon by the teacher
• Ask the teacher to call upon the student as soon as he/she raises hand

Error Pattern 2: Form Related Block Error

• Provide the student with a phonemic cue
• Use a multiple choice
• Give the student extended time (to respond and on tests)
• Prime the student with a question

Error Pattern 3: Form/Segment Phonological Error
• Give the student multiple choice
• May need to change the prosody to stress the correct pattern
• May need to offer a tactile or visual cue to assist with the phonological error

Hidden Language Disorder #2: Lag in Processing Auditory Information
• Information processing involves multiple cognitive tasks and students may take additional time to process through what was said
• The child’s understanding will likely be better in everyday situations than in situations where there are few or no extra clues to meaning. In such situations, the child may fail to respond, may repeatedly say “Huh?”, may simply guess what has been asked, or may even repeat some or all of what was said.
• Taking a long time to respond to a question

What assessment do you have to evaluate language processing or how will you recognize it?

I don’t know of any measure that assesses language processing speed.

What you will see:

1. Student may respond to a prompt with a response that is close and then will continue to talk and finally state the correct response
2. Will ask you to slow down while you are talking
3. May not answer the prompt when asked but when you move on to the next prompt, the student responds appropriately to the previous prompt

Ways to Support Language Processing Time

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• Present information in several modalities. Concrete materials, manipulatives, and visual aids will help the student make meaningful connections between concepts and language.

• Divide the instruction into smaller, more manageable chunks.

• Help the child make connections between different concepts by regularly referencing his/her background knowledge.

• Create Wait Time (introduced by Mary Budd Rowe, 1972).
  - A period of silence that follows a teacher’s question and the student’s response. When these periods are at least 3-5 seconds, she found
    - Decrease of response of “I don’t know”
    - More volunteered appropriate responses

Hidden Language Disorder #3: Executive Function

Executive Functions - High level cognitive functions. Allows us to organize our behavior over time and override immediate demands in favor of longer term goals. Enables us to manage our emotions and monitor our thoughts in order to work efficiently and effectively. Young children require external control for executive function. The goal is for, as the student gets older, the student to be able to internalize what is required to inhibit responses, control impulses, plan, and organize.
What are Executive Functions?

Thinking Skills to Plan and Achieve Goals
- Planning
- Organization
- Time Management
- Working Memory
- Metacognition (hold information in mind while performing complex tasks. Ability to draw on past experiences to apply to situation at hand or project into the future). The ability to take a look at oneself in a situation, observe how you problem solve, self monitoring and self evaluation.

Executive Skills to Guide Behavior
- Response Inhibition
- Emotional Control
- Sustained Attention
- Task Initiation
- Flexibility
- Goal Directed Persistence  (Dawson and Guare, 2010)

What assessment do you have to evaluate executive function?

| Executive Functions Test Elementary (memory, attention, flexible thinking, shifting) Ages: 7-12 |
| Behavior Rating Inventory of Executive Function (BRIEF) By Gerard A. Gioia, PhD, Peter K. Isquith, PhD, et al |
| Executive Skills Questionnaire for Students and Executive Skills Questionnaire for Parents (in the book, Executive Skills in Children and Adolescents, Dawson and Guare, 2010) |
| TAPS 3 (Word and Sentence Memory) |
## Development of Executive Functions

<table>
<thead>
<tr>
<th>Preschool</th>
<th>K-2</th>
<th>Grade 3-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Follow simple directions</td>
<td>1. Follow 2-3 step directions</td>
<td>1. Chores (increased responsibility)</td>
</tr>
<tr>
<td>2. Chores (clean room with help)</td>
<td>2. Chores (specific tasks assigned – clean room, clear table after meal, etc.)</td>
<td>2. Bring books, papers, &amp; assignments to and from school</td>
</tr>
<tr>
<td>3. Inhibit behaviors (don’t touch something hot)</td>
<td>3. Bring papers to and from school</td>
<td>3. Keep track of belongings when away from home</td>
</tr>
<tr>
<td>4. Participate in classroom routines (i.e.: walk in a line in the hall, sit for circle time, move from center to center, etc.)</td>
<td>4. Complete homework</td>
<td>4. Plan simple school projects (i.e.: book report)</td>
</tr>
<tr>
<td></td>
<td>5. Inhibit behaviors for safety rules</td>
<td>5. Keep track of daily changes to schedule</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Inhibit/self regulate when teacher is out of the room.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grades 6-8</th>
<th>High School</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Chores (responsibilities on a daily or weekly basis)</td>
<td>1. Manage school work effectively</td>
</tr>
<tr>
<td>2. Babysit younger siblings</td>
<td>2. Completing and handing in assignments on time</td>
</tr>
<tr>
<td>3. Use system for organizing school work.</td>
<td>3. Effective ways to study for tests</td>
</tr>
<tr>
<td>4. Follow complex school schedule (different classrooms and changing teachers)</td>
<td>4. Creating and following timelines for long term projects</td>
</tr>
<tr>
<td>5. Plan and carry out long term projects</td>
<td>5. Make adjustments to effort and quality in response to teacher feedback</td>
</tr>
<tr>
<td>6. Plan time (i.e.: homework, play, sports, etc.)</td>
<td>6. Establish and refine long term goals and make plans for meeting those goals</td>
</tr>
</tbody>
</table>

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7. Planning activities such as sports, clubs, scheduling and preparing for SAT/ACT if planning to go to college
8. Good use of leisure time (i.e.: employment outside of school.
9. Inhibit reckless and dangerous behaviors

Ways to Assist with Increasing Executive Function

Pre K

Changes to the Physical Environment for Whole Classroom:
1. Reduce wide open spaces (to reduce impulsivity
2. Classroom design for unobstructed view of all students
3. Monitor for boredom or disinterest in a center in order to move student before problems arise
4. Group students to promote attention to task and reduce conflict due to impulse or emotional control
5. Make activities shorter or less time at specific centers

Changes to Physical Environment for Individual Students
1. Classroom seating (away from distractions)
2. Highly structured teacher
3. Increased adult supervision for inhibiting responses
4. Offer choices
In the hall:
1. Holding a rope in a line
2. Hold a picture showing students walking in a line

Other:
1. Set up of centers in the classroom to provide choices
2. Use picture system for transitions between activities and rooms in the building or schedule changes
3. Increase level of supervision or support
4. Praise desired behavior
5. Anticipate problem behaviors to intercede before it occurs.
6. Natural consequences

K-2
Same physical environment changes as Preschool
1. Schedule on the board
2. Make assignments shorter
3. Make steps for assignments more explicit
4. Offer options (i.e.: tic tac toe activities to complete spelling packet)
5. Backpack checks
6. Schedule at home for homework time and leisure time
7. Timer for how long to complete homework
8. Timer at school for start and completion time for assignments/activities
9. Picture of holding up hand to reduce response inhibition

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7. Increase level of supervision or support
8. Praise desired behavior
9. Natural consequence for actions

Grades 3-5
1. Daily schedule the student can check off
2. Make tasks closed ended (i.e.: choose between 2 projects, multiple choice)

Introduce visual graphic strategies
1. Web or EET for organizing writing or thoughts
2. Checklists

Grades 6-8

For group work:
1. Take into account strengths and weakness of students’ executive skills when forming groups
1. Copy of teacher’s notes/visual presentations (organization for studying)

Break down long term assignments (planning skills)

For Metacognition:
1. Reteaching
2. Extended Teaching
3. Modeling
4. Multimodality teaching
5. Peer tutoring
6. Use of manipulatives
7. Use of organizers
8. Use of study guides

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High School

For group work:

- Same as Grades 6-8
- Have students complete an executive checklist (Executive Skills Questionnaire – Dawson and Guare, 2010).
- Determine groups based on self assessment
- Copy of teacher’s notes/visual presentations (organization for studying)
- Break down long term assignments (planning skills)
- Organization - Keeping track of information or materials
  a. Assist students with appropriate ways to organize binders
  b. Use an app with a calendar and homework information

For Metacognition:

- Reteaching
- Extended Teaching
- Modeling
- Multimodality teaching
- Peer tutoring
- Use of manipulatives
- Use of organizers
- Visual Strategies: See Linguistic Section under Metalinguistic Skills
Hidden Language Disorder #4: Working Memory

Working Memory - hold information in mind while performing complex task. Ability to draw on past learning or experiences to apply to a situation at hand or to project into the future

- Short-term memory is the ability to hold information in one’s mind and then use it within a few seconds. A component of short-term memory is working memory.


- Memory impairments in childhood can have negative consequences for the development of language, literacy, social skills, personal relationships, and a sense of personal history (Rankin and Hood 2005).

- Laws (1995) found that reading instruction had positive effects on memory and language
Characteristics of Working Memory Deficits

- Difficulty remembering instructions or directions they have just been given,
- Difficulty with what was just said during conversations and class lectures and discussions, and
- Difficulty remembering what he/she are doing
- May understand the three-step direction they were just given, but forget the second and third steps while carrying out the first step.
- If a math problem has several steps, the student might forget the steps while trying to solve the problem.
- Reading: Short-term memory is important to reading achievement. Reading comprehension, involving long reading passages, may be affected by skills specifically related to working memory. When they are reading a paragraph, they may forget what was at the beginning of the paragraph by the time they get to the end of the paragraph. These students will look like they have difficulty with reading comprehension. In facts, they do; but the comprehension problem is due to a failure of the memory system rather than the language system.
- Basic word reading may be impacted by deficits in short-term memory because it may interfere with acquiring letter and word identification skills.
- Math: Short-term memory is important to math computation skills. For example, deficits in short-term memory may impact one’s ability to remember a sequence of orally presented steps required to solve long math problems (i.e., first multiply, then add, then subtract).
- Written Expression: Short-term memory is important to writing. Memory span is especially important to spelling skills, where working memory has shown relations with advanced writing skills (e.g., written expression).
• Oral Language: A student with short-term memory deficits may have problems following oral directions because they are unable to retain the information long enough to be acted upon. A student with short term memory deficits also may have problems with oral expression because of difficulties with word-find or being unable to retain information long enough to verbally express it.

STRATEGIES: Memory

• Rehearsal and organization (categorizing and grouping information).
  Broadly, 1993

• Software/Internet Based Programs
  o Hearbuilder’s Auditory Memory
  o Luminosity (Speed, Memory, Attention, Flexibility, Problem Solving, Language)

• Lindamood Bell Visualizing and Verbalizing complete kit $499 (Training courses also available)

• Give directions in multiple formats
  o Students benefit from being given directions in both visual and verbal formats. Provide examples and ask the student to repeat the instructions.

• Teach students to over-learn material
  o Students should be taught the necessity of "over-learning" new information. Several error-free repetitions are needed to solidify the information.
• Give teacher-prepared handouts prior to class lectures
  o Class lectures and series of oral directions should be reinforced by
teacher-prepared handouts. The handouts for class lectures could
consist of a brief outline or a partially completed graphic organizer
that the student would complete during the lecture.
• The use of Post-Its to jot information down on is helpful for remembering
directions.
• Teach students to be active readers
  o To enhance short-term memory registration and/or working memory
  when reading, students should underline, highlight, or jot key words
down in the margin when reading chapters. They can then go back
  and read what is underlined, highlighted, or written in the margins. To
  consolidate this information in long-term memory, they can make
  outlines or use graphic organizers.
• Write down steps in math problems
  o Students who have a weakness in working memory should not rely on
  mental computations when solving math problems.
  o When solving word problems, they should always use a graphic
    organizer with a specific process to follow. This will help prevent
    them from losing their place and forgetting what they are doing.
• Provide retrieval practice for students
  o Research has shown that working memory is enhanced when students
  engage in retrieval practice which is the act of recalling information
  that has been studied from long-term memory.
• Help students develop cues when storing information
  o According to the memory research, information is easier retrieved when it is stored using a cue and that cue should be present at the time the information is being retrieved. For example, the acronym HOMES can be used to represent the names of the Great Lakes — Huron, Ontario, Michigan, Erie and Superior.
• Prime the memory prior to teaching/learning
  o Cues that prepare students for the task to be presented are helpful. This is often referred to as priming the memory. For instance, when a reading comprehension task is given, students will get an idea of what is expected by discussing the vocabulary and the overall topic beforehand. This will allow them to focus on the salient information and engage in more effective depth of processing. Advance organizers also serve this purpose. For older students, Spark Notes or online book summaries and chapter summaries for pieces of literature are often helpful aids for priming the memory.
• Review material before going to sleep
  o It should be helpful for students to review material right before going to sleep at night. Research has shown that information studied this way is better remembered. Any other task that is performed after reviewing and prior to sleeping (such as getting a snack, brushing teeth, listening to music) interferes with consolidation of information in memory.


Additional materials may be found at www.courtercommunications.com conference materials and visual strategies username: courtercx password: bella
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Problems and Executive Functions that May be Responsible

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>Executive Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low percent of homework turned in on time</td>
<td>• Task initiation</td>
</tr>
<tr>
<td></td>
<td>• Working memory</td>
</tr>
<tr>
<td></td>
<td>• Sustained attention</td>
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<tr>
<td></td>
<td>• Time management</td>
</tr>
<tr>
<td></td>
<td>• Goal directed persistence</td>
</tr>
<tr>
<td>Homework accuracy</td>
<td>• Working memory</td>
</tr>
<tr>
<td></td>
<td>• Metacognition</td>
</tr>
<tr>
<td>Discipline referrals</td>
<td>• Response inhibition</td>
</tr>
<tr>
<td></td>
<td>• Emotional control</td>
</tr>
<tr>
<td></td>
<td>• Flexibility</td>
</tr>
<tr>
<td>Tardiness</td>
<td>• Time management</td>
</tr>
</tbody>
</table>
Hidden Language Disorder #5: Discrimination

Definition:
The ability to recognize differences in phonemes (the smallest unit of sound in a language), including the ability to identify words and sounds that are similar and those that are different.
Impact on learning:

Early years:
- Following auditory direction in the classroom
- Rhyming, blending, segmenting, manipulating
- Difficulty with spelling novel words
- Difficulty sounding out novel words

Later years:
- Following classroom instructions
- Understanding classroom discussions
- Understanding teacher’s lectures
- Lasting impact on spelling
- Lasting impact on reading

What assessments do we have to evaluate phonemic awareness?

Assessments
- Lindamood Auditory Conceptualization Test 3rd Ed (ProEd: ages: 5;0-18;11 $227) Measures the ability to perceive and conceptualize speech sounds using a visual medium (norm referenced)
- The Learning Staircase Auditory Discrimination Test (free download: http://cdn.learningstaircase.co.nz/assets/Uploads/Printables/Auditory%20Discrimination%20Test.pdf)
- Nancy Meacham Cole (Teachers Pay Teachers free download)

☆☆ Must know history or ongoing chronic otitis media.
The frequency and characteristics of early vocalizations can be affected by perceptual factors impacted by chronic otitis media (Petinou, et al 1999. Rvachew, et al 1999)
Therapy Strategies

- Lindamood Bell Phoneme Sequencing Program (LiPS) (Gander Publishing $444.95) Training and Workshops: 3 day course $879)
- Seeing Stars for Phonemic Awareness, Reading, and Spelling –Lindamood Bell (Gander Publishing $499.95) (2 day course $679)
- Earobics ($329-450 depending on the program. Home version (2 students) $99.00)
- Hearbuilders (www.superduperinc.com) Phonological Awareness (PreK-5th)
- Therapy activities: (introduce background noise:
  
  o Google download free audio files using "cocktail party noise" or "speech babble" is more consistent with real life situations.)
  
  o Differential Processing Training Program Acoustic Tasks (Linguisystems $34.95)
  
  o https://en.commtap.org/phonology-articulation/auditory-discrimination-minimal-pairs
  
  
  o http://www.readingrockets.org/article/phonemic-activities-preschool-or-elementary-classroom
  
  o www.phonologicalawareness.org
  
  o https://www.mnsu.edu/comdis/kuster4/part88.html

- Apps
  
  o Sound Match by Rafal Staszewski
  
  o Sound Swaps ($9.99)
  
  o Hey Bear, What do you hear? ($1.99)
  
  o What’s That Sound? ($1.99)
Sound Sorts ($1.99)  ***phoneme sounds
- Touch the sounds (free)
- Prosodic cues to stress the correct phoneme
- Spelling utilizing visual and tactile cues
- Visual Phonics program
  - Pam Marshalla’s vowel program (available on YouTube)
  - Visual Phonics program used by your school if it has gestures to go with the sounds

Accommodations in the Classroom:

☆☆☆ Same as listed for CAPD

Word List for Minimal Pairs


<table>
<thead>
<tr>
<th>Back sounds to front sounds (/k, g/ and /t, d/)</th>
<th>/s, z, f/ and /t, d, p/ (Stopping)</th>
</tr>
</thead>
<tbody>
<tr>
<td>car/tar</td>
<td>four/paw</td>
</tr>
<tr>
<td>Kim/Tim</td>
<td>fan/pan</td>
</tr>
<tr>
<td>key/tea</td>
<td>cuff/cup</td>
</tr>
<tr>
<td>come/tum</td>
<td>half/harp</td>
</tr>
<tr>
<td>cap/tab</td>
<td>sea/tea</td>
</tr>
<tr>
<td>coffee/toffee</td>
<td>sail/tail</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>‘f, s, sh’ and ‘b, d,’ (Stopping and voicing fricatives)</th>
<th>Final sounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>fatman/batman</td>
<td>car/cart</td>
</tr>
<tr>
<td>phone/bone</td>
<td>tar/tart</td>
</tr>
<tr>
<td>fox/box</td>
<td>bee/bean</td>
</tr>
<tr>
<td>funny/bunny</td>
<td>no/nose</td>
</tr>
<tr>
<td></td>
<td>moo/move/moon/moose</td>
</tr>
<tr>
<td>Simplifying blends</td>
<td>Context sensitive voicing</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>• pay/play</td>
<td>• pea/bee</td>
</tr>
<tr>
<td>• goo/glue</td>
<td>• pear/bear</td>
</tr>
<tr>
<td>• fat/flat</td>
<td>• tear/deer</td>
</tr>
<tr>
<td>• go/grow</td>
<td>• curl/girl</td>
</tr>
<tr>
<td>• door/drawer</td>
<td>• fan/van</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>/w,r/ and /l, y/</th>
<th>/t/ final versus vowel</th>
</tr>
</thead>
<tbody>
<tr>
<td>• rich/witch</td>
<td>• cart/car</td>
</tr>
<tr>
<td>• ring/wing</td>
<td>• note/no</td>
</tr>
<tr>
<td>• yapping/lapping</td>
<td>• fort/four</td>
</tr>
<tr>
<td>• fight/white</td>
<td>• shoot/shoe</td>
</tr>
<tr>
<td>• tire/white</td>
<td>• start/star</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Word List for Similar Sounding Words</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>il</strong></td>
</tr>
<tr>
<td>bill</td>
</tr>
<tr>
<td>built</td>
</tr>
<tr>
<td>fill</td>
</tr>
<tr>
<td>hill</td>
</tr>
<tr>
<td>kill</td>
</tr>
<tr>
<td>kiln</td>
</tr>
<tr>
<td>milk</td>
</tr>
<tr>
<td>milk</td>
</tr>
<tr>
<td>pill</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>sill (window)</td>
</tr>
<tr>
<td>spill</td>
</tr>
<tr>
<td>still</td>
</tr>
<tr>
<td>till</td>
</tr>
<tr>
<td>will</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>an</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>band</td>
</tr>
<tr>
<td>can</td>
</tr>
<tr>
<td>Dan</td>
</tr>
<tr>
<td>fan</td>
</tr>
<tr>
<td>hand</td>
</tr>
<tr>
<td>land</td>
</tr>
<tr>
<td>man</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>pan</td>
</tr>
<tr>
<td>ran</td>
</tr>
<tr>
<td>sand</td>
</tr>
<tr>
<td>stand</td>
</tr>
<tr>
<td>span</td>
</tr>
<tr>
<td>tan</td>
</tr>
</tbody>
</table>

Bringing the Pieces Together

Overall Classroom Strategies for Hidden Language Disorders

1. If the teacher uses complex language, encourage him/her to repeat in a simplified form.
2. Encourage the teachers to “tune” into figurative language or expressions and have them explain what they mean.
3. Encourage the student to advocate for himself he/she does not understand information.
4. Preview and Review Constantly - Preview, review, and summarize all new and previous lessons including vocabulary words and concepts.
5. Relate new material to previous lessons and experiences. •
6. Provide pre-assigned readings, homework, videos or online explanations before introducing new material and/or topics.

7. Provide a short preview, outline, list of new vocabulary, and key points for class discussion and as a guide for parents to help with homework and review for tests.

8. Write main concepts on board

9. Use visualization techniques to enhance listening and comprehension

10. Use of graphic organizers or graphic organizer apps for note taking from lectures or books

11. Use story starters for creative writing assignments

12. Practice story mapping


13. Draw out details with questions and visualization strategies
14. Don’t overuse words, especially words in text. You can shorten sentences by eliminating non-essential words and phrases, as well as limiting double negatives. (See highlighting strategy in presentation: Highly Effective Visual Graphic Strategies)

15. Encourage and help the child summarize what he or she is reading and also to write it down for better understanding and retention

16. Break down larger reading assignments into small sections; highlight the most important part of a reading assignment

17. Use pictures, videos, computer generated models, helps students with LPD use their visual reasoning skills in order to understand the material and to express their own understanding

18. Allow students to use visual models and projects as instead of written assignments or spoken presentations if possible

19. It is very helpful to allow students to use multisensory materials and approaches

20. Avoid using multiple choice items that require complex analysis of language; instead, focus only on the essential details and facts required to master the subject matter

21. Allow students extra time to listen, think, process and form their own thoughts about the written and/or spoken material in the classroom

22. Students may need to get extra clarification from the teacher so allow them to discuss assignments with the teach and also with other students if necessary
Academic Achievement and Hidden Language Disorders

Linguistic

<table>
<thead>
<tr>
<th>Semantic/Retrieval</th>
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<tbody>
<tr>
<td></td>
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Cognitive – Processing Time/Executive Function

<table>
<thead>
<tr>
<th>Processing Time</th>
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</thead>
<tbody>
<tr>
<td>Organization</td>
</tr>
<tr>
<td>Time Management</td>
</tr>
<tr>
<td>Working Memory</td>
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<td>Sustained Attention</td>
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<tr>
<td>Task Initiation</td>
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</tbody>
</table>
### Ideas for Your Students

<table>
<thead>
<tr>
<th>Perceptual</th>
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</thead>
<tbody>
<tr>
<td>Discrimination</td>
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</tbody>
</table>

A hidden language disorder is often looking for that needle in a haystack.