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ABOUT THIS PROGRAM

A child listens to a direction, a lecture, a conversation, or a story, yet does not completely understand what is heard. Bits and pieces are recalled—maybe the first thing that was said, maybe the last. At times, the information is remembered, but misconstrued. The speech signal may not have been heard clearly. Perhaps the temporal concepts are confusing to the child. The child's reading, spelling, and writing skills may be weak. After a while, the child may “tune out” when people are talking. These are the hallmark behaviors of a child with an auditory processing disorder.

While the evaluation process affords the clinician the opportunity to quantify the child's present level of performance on a variety of standardized tasks, it also should provide the clinician a window into *how* the child is approaching auditory tasks. After studying available research and years of carefully comparing the testing behaviors of children with above average auditory skills with those of children scoring poorly on auditory tests, I have compiled a list of behavioral differences in the way these two groups of children approach challenging auditory testing tasks (see Table 1). Examples of challenging listening tasks include following complex oral directions and listening to orally presented passages and then answering comprehension questions.

As noted in Table 1, children with good auditory processing skills seem to naturally use strategies such as controlling their body, paraphrasing, subvocalizing, visualizing, and requesting clarification during demanding auditory tasks, whereas children with poor auditory processing skills often do not. By being taught these same techniques, children with poor auditory processing skills can learn to approach listening tasks in a more effective way. These self-initiated thinking strategies are called *metacognitive skills*. Incorporating the teaching of metacognitive skills is frequently recommended by experts in the field (Ferre, 1998; Geffner, 2001) and is the basis for this program.

At its core, auditory processing requires the child to attend to the message being spoken. Children with good auditory processing skills usually instinctively know to modify their behavior for especially demanding auditory tasks. They straighten up, focus on the speaker, and naturally keep their body still. Children with poor auditory processing skills often exhibit difficulty with these kinds of attending behaviors (Truesdale, 1990). Therefore, they sometimes need to be taught *how* to attend in a more conscious way. The lessons in Chapter 2, *Attending*, help the child learn skills such as self-monitoring body posture during demanding

TABLE 1
BEHAVIORS OF GOOD AND POOR AUDITORY PROCESSORS
DURING CHALLENGING LISTENING TASKS

Behaviors of Good Auditory Processor	Behaviors of Poor Auditory Processor
Keeps body still	Body is often moving or slumped
Keeps eyes focused on one spot	Eyes often wander
Successfully shifts body and maintains attention	Often looks around and loses attention when shifting body position
Requests clarification when confused	Often passive, does not seek clarification until asked a question or prompted
Can repeat most or all words in a series, although word order may be reversed	May forget all the words completely or substitute semantically unrelated words with same first sound
May make paraphrasing errors on sentence imitation tasks	Often forgets entire sentence or recalls only the first or last part
Can be heard or seen subvocalizing during imitation tasks	Often has blank look or wandering eyes before responding during imitation tasks
May forget details in a story, but recalls salient information and plot line	May not have processed plot line at all; sometimes remembers unimportant information
Uses self-gesturing to help process and recall temporal or spatial directions	Uses very little self-gesturing during processing task, but may use it to supplement expressive language
Hears stories and reports ability to "see" it unfold, as when watching a movie	Hears stories, but reports "seeing" nothing or only isolated content words

auditory tasks, recognizing and handling internal and external distractions, and increasing proactive behaviors for requesting clarification. The child can then increase his ability to focus on what is being said.¹

Chapter 3 teaches subvocalizing, also known as reauditorization. During imitation or following direction tasks, one can often observe good auditory processors employing this technique, whereas poor auditory processors typically are silent and not moving their lips (Healy, 1990). This is an important skill that can be taught not only for the recall of serialized numbers or words, but also for the recall of directions, copying words from the board, and other

¹ Although I refer to the student as "he" to avoid the more awkward "he or she," the program is appropriate for use by both boys and girls.

auditory processing tasks. However, simply telling a child to “say it to yourself” is not specific enough for use as a strategy. Rather, the skill needs to be taught and practiced in small steps, across many different types of tasks, until it has been habituated. The hierarchy in Chapter 3 moves from having the child subvocalize the prompts out loud, to whispering, to moving the lips only, and finally to internalized (mental) subvocalizing.

In Chapters 3 through 5, the clinician’s rate of presentation is graded, starting at a very slow presentation rate, increasing to slow-normal, then normal, and when appropriate fast-normal rates of speech. This increase in rate requires the child to employ the strategies with increasingly more difficult tasks. McKinnis and Thompson (1999) demonstrated that a child with auditory processing disorders has an increased ability to process language when the presentation rate is decreased and paused. The same study also showed that children who were taught to process linguistic commands with carefully graded increases in presentation rate and reduced pausing were able to improve their ability to process language. My clinical experience supports this finding, and this strategy was incorporated into this program as well.

Throughout Chapters 3 through 5, the clinician is also prompted to have the child *wait* after the prompts are given, before responding. The reason for this delayed response approach is to provide the child time to use the strategies being taught and practice holding onto the auditory information. In more functional situations, the child will most likely need to wait before responding. For example, if a teacher tells a class to “Open your math book to page 45 and do numbers 1 through 10,” a child must remember the direction while hunting for his book, flipping through the pages, and locating his pencil. Because auditory tasks that require verbal responses versus motor responses tap into different neural pathways, the lessons in this program seek to integrate both response modes.

Throughout Chapters 3 through 5, the clinician is also invited to introduce background noise during the wait time, after the prompt has been presented. This serves to tax the child’s auditory system and help simulate less than ideal conditions that may be found in the classroom or at home. After all, if the child can perform the strategies only under quiet, ideal clinical conditions, he most likely will not use the strategies in other situations, which is the goal of this program.

Chapter 4 helps the child continue practicing the subvocalizing strategy within the context of a chunking framework. Chunking is a particularly helpful skill when trying to process or subvocalize several pieces of information, particularly in a complex oral direction. It is also helpful when copying notes from the board and recalling discrete bits of information such as dates, times, names, and associated information.

Chapter 5 teaches visualization using Visualizing Shorthand, a method I developed to help children with auditory processing disorders learn how to visualize in a more accurate, concise manner. At its core, it teaches a child to break a sentence down into its most important elements through various drawing and critiquing exercises in gradually increasing linguistic units. Because many children with auditory processing disorders are also weak in expressive language skills, this program uses the visual modality to facilitate the process. In essence, the child initially learns to “translate” what is heard into a visual format (drawings), with a specific set of rules. As the child is successful, the child translates auditory language into a mental (visual) image.

Other visualization programs use language as a catalyst for facilitating visualization (Bell, 1991). However, the child with weak language skills may become distracted by expressive

language tasks, which can often break his focus on the auditory task at hand as he struggles with word retrieval, syntax, and vocabulary. Visualizing Shorthand focuses on helping the child determine the *salient* aspects of the message, allowing the child to visualize more quickly and avoid getting bogged down in trying to recall unimportant details.

Because poor auditory memory is often an area of weakness for the child with auditory processing disorders (American Speech-Language-Hearing Association, 1996), I have found that specific instruction targeted toward improving auditory memory (subvocalizing and chunking) is needed *first* or the child will not be able to employ visualization strategies successfully at the complex sentence or passage level. One cannot process or visualize information if the spoken words are gone before the visual image can be retrieved.

Appendix A provides helpful suggestions for facilitating improved comprehension of reading material, using a metacognitive approach. As one who has been a reading teacher as well as a speech pathologist, I believe the auditory comprehension of spoken language and the comprehension of written language require many skills that overlap. However, reading (written language) also requires the interpretation of written symbols (letters) as well as punctuation marks in order to “hear” the message as it was intended. The interpretation of this written code therefore requires an additional layer of intervention, and the methods employed should reflect this necessity. Appendix A describes some suggestions for doing so.

Appendix B begins with a list of commercial resources, such as games, instructional materials, home-practice pages, and more. If desired, you can also use these resources to practice applying some of the principles introduced in this program. For example, an activity for following directions lends itself well to practicing attending, subvocalizing, chunking, and perhaps visualizing. Appendix B also includes a list of professional resources for use in learning more about auditory processing.

What kind of metacognitive strategies do *you* use when trying to follow a direction? Try this. Read the following direction once, quickly, then look away and wait 1 minute before following it. Notice what you are doing to help yourself remember what to do, especially during the 1-minute waiting interval.

Direction: Using your pen, draw a large hat. Then when you have finished doing that, draw a small circle on the same page. Go.

How did you remember what to do? Did you pull out the important words, such as “large hat” and “small circle” and repeat them to yourself (chunking)? Did you trace them with your finger (gestural cueing)? Did you imagine (visualize) them? Did you ignore the noise or visual distractions around you while you stayed focused on remembering what to do? Most of us use a combination of strategies without ever being formally taught. Our choice of strategies is not fixed. We typically modify it as needed, depending on the task.

Imagine you are trying to find the airport. You pull over and ask for directions. Imagine someone gave you the following directions. What would you do if you didn’t have something on which to write? Try reading this next direction quickly and wait 1 minute.

Direction: Go about one mile, then make a left. You'll go through three lights, then turn right.

What strategies did you employ this time? Did you use your hands? Did you visualize? This program was developed to help the child learn to use these same strategies.

Underlying Principles

The following are the principles that underlie this program.

- ▶ **1. A child with an auditory processing disorder will generally not change his approach to a task unless shown another way.** Practicing tasks in which the child has scored poorly (e.g., repeating a series of words, following auditory directions, listening to a story and answering questions), with no instruction as to how to do it differently, is generally ineffective. The child does not need more practice performing the task inefficiently. The child needs practice performing the task a better way.
- ▶ **2. A child with an auditory processing disorder needs a step-by-step approach, with much practice and repetition, to internalize and carry over the concepts.** Jumping around from session to session to address a variety of skills is ineffective. For example, if the clinician works on following directions with the concepts “before” and “after” for one week, then rhyming the next week, then listening to stories and answering questions the following week, chances are the therapy will not be optimally productive. However, in this program it is expected—and desirable—that more than one skill will be addressed within a single session.
- ▶ **3. A child with an auditory processing disorder needs to work on these skills in an appropriate hierarchical fashion.** For example, attending to instruction is a foundation for productive therapy and therefore is introduced first. Subvocalizing, a skill for remembering discrete bits of information, is taught next. Because chunking is an extension of subvocalizing, it is introduced after subvocalization. Visualization requires attending, subvocalizing, and chunking, and therefore is introduced last in this program.
- ▶ **4. Every program should be tailored to the individual child.** The clinician needs to analyze the information from the initial assessment and make sure the goals match the individual child's needs, not only the diagnostic label. For example, if the child is already attending well or subvocalizing on his own, therapy time need not be spent on those skills.
- ▶ **5. The methods and instructional delivery should capitalize on a child's strength.** Therefore, if a child learns well with a visual approach, instructional methods

should reflect that. Because most auditory learners are stronger in their visual modality, this program has a strong visual component.

- ▶ **6. No single program meets the needs of every child.** Although metacognitive strategies are important for children with auditory processing weaknesses, a comprehensive program may also need to include other areas, such as phonemic awareness, vocabulary development, lipreading, and auditory discrimination. Because some children with poor auditory processing skills may already employ many of these strategies, they may not require all the lessons in this program. *A Metacognitive Program for Treating Auditory Processing Disorders* is not meant to be an all-inclusive program, but to serve as a valuable tool for teaching metacognitive skills to those children who need it.

Questions and Answers

Who should use this program?

This program is designed for use by speech–language pathologists, audiologists, and any other resource professionals who wish to help a child learn metacognitive strategies.

For what ages and abilities are these materials designed?

This program is most effective for children ages 6 years and older. Parts of the program may be adapted for children with lower cognitive ability; however, it is generally most useful for children with normal to above intelligence. Some aspects of this program may be adapted for children with autism spectrum disorders.

How was this program developed?

This program was developed by a speech–language pathologist over the course of 20 years in public school programs and private practice.

Should this program be used in conjunction with *It's Time To Listen: Metacognitive Activities for Improving Auditory Processing in the Classroom* (Hamaguchi, 2002)?

It is advantageous but not necessary to use these programs in concert. Although some of the activities dovetail, overall the activities in *It's Time To Listen* are metacognitive skills that are specifically needed and best practiced in a classroom or large-group environment, whereas the activities in this program are designed for use in a therapeutic intervention program.

Do I need to follow this program in order?

Yes. In general, each lesson builds upon the previous ones. Whatever lessons you choose should follow the order of the program; however, you can skip any lessons that are not necessary, too easy, or too difficult for the child.

How often should the child receive therapy?

This is an individual decision that is best made by the clinician and parent. The clinician should make sure that other speech, language, or auditory skills are also addressed in a comprehensive intervention program. This program does not require a set amount of time each day. However, experience using this program shows that 15 to 20 minutes of targeted therapy using this program, twice per week, with practice at home, is effective for most children. Children with coexisting language disorders usually require additional time to work on both language and auditory processing (approximately 60 to 90 minutes a week).

How long does it take to complete this program?

Because each child is unique, there is no specific time frame for completing this program. In general, this program takes about 1 year to complete if every lesson is utilized.

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