

Language Intervention for children with an Auditory Processing Disorder, Part 1

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Relevant Financial Relationship

Dr. Coen-Cummings is receiving an honorarium and travel support for this presentation. She is a paid employee of the Cincinnati Children's Hospital and will be referencing her place of employment along with actual case studies. She is a reviewer for speechpathology.com and Learning By Design, Inc.

Course Description

This seminar will delineate the current research's stance on evidence-based treatment strategies for children diagnosed with a (central) auditory processing disorder, and how the overall intervention goal will vary, depending on whether a speech-language pathologist or an audiologist is delivering the treatment. In addition, the main focus is the DEMONSTRATION (via videos) of clinical application of language processing management goals that improve active listening skills.

Learning Outcomes

"After this course, participants will be able to..."

- 1) describe the relationship with which evidenced-based research can be applied to interventions for language processing that increase a child's active listening skills
- 2) identify the child's problem area(s) and develop direct intervention goals that correspond to improving the deficit skills
- 3) develop therapeutic tasks that will achieve the appropriate, deficit-specific treatment goals
- 4) provide the families of the child being treated, with a home program (using games and Apps) that facilitates the skills being addressed in treatment.

- "The concept of CAPD as a unique diagnostic entity that could be assessed and treated in school-aged children continues to engender controversy".

David A. DeBonis American Journal of Audiology Vol.24 124-136 June 2015

- "Cacace and McFarland (2005) described the current status as stalled

- "Cowan, Rosen and Moore (2009 referred to the auditory processing-related research as 'stagnated'(p.188); and even proponents of CAPD have admitted that the persistent lack of evidence validating the nature of the disorder and the most appropriate test protocol threatens its viability as a diagnostic entity"

(Bellis,2002; Dawes & Bishop, 2009; DeBonis & Moncrieff, 2008) American Journal of Audiology Vol 24. 124-136 June 2015

Auditory Processing Defined

Auditory processing is the efficiency and effectiveness by which the central nervous system utilizes auditory information. It encompasses the perceptible processing of auditory information in the central nervous system and the neurobiologic activity that underlies that processing and gives rise to electrophysiologic auditory potentials (ASHA, 2005).

CAPD defined

CAPD refers to limitations in the ongoing transmission, analysis, organization, transformational, elaboration, storage, retrieval, and use of information contained in audible signals.

Kathy Fahey (Nov. 2004 speechpathology.com)

CAPD proposed by the Task Force on Central Auditory Processing Consensus Development (ASHA, 1996)

Central Auditory Processes are the auditory system mechanisms and processes responsible for the following behavioral phenomena:

- Sound localization and lateralization
- Auditory discrimination
- Auditory pattern recognition
- Temporal aspects of audition, including temporal resolution, temporal masking, temporal integration, temporal ordering
- Auditory performance decrements with competing acoustic signals
- Auditory performance decrements with degraded acoustic signals

- “Although ASHA agrees that individuals who have CAPD exhibit deficits in processing that are more substantial in the auditory modality, it also admits that sensory processing involves modalities as well as support from cognitive and language systems, making complete modality specificity unlikely”.

De Bonis, 2015...give reference

- “Medwetsky (2011) agreed that pure auditory processing is unlikely, stating that ‘the processing of spoken language entails the intertwining of auditory, cognitive and language mechanisms that are often engaged simultaneously’(p.291).

Language Processing defined

Language processing refers to the ability to attach meaning to auditory information and the utilization of mental operations by which we perceive, recognize, understand and remember sounds, words and sentences.

(Chris Dollaghan, Ph.D CCC-S on www.apraxia-kids.org)

Language processing exists in tandem with auditory processing but is also independent from it

The ASHA Task Force (1996) definition not only specifies the auditory aspects of processing, but it also makes a distinction regarding processing that is not dependent on acoustic signals. This distinction leads to a broader discussion of language processing. Consider the other modes we use to receive, perceive, analyze, store, retrieve, formulate and produce language. For example, we can use sign language to transmit and to comprehend messages. Individuals, who are deaf or hard of hearing, process language without the benefit of an intact auditory system. We "read" paralinguistic cues (facial expressions, body posture, gestures) as we communicate with others and know that such cues sometimes support, but other times do not support the verbal message that we hear. Written language is another way that we process language without direct auditory input. Reading and writing development is certainly facilitated by knowledge of verbal speech and language, but development is possible without verbal input. These examples show that language processing exists in tandem with auditory processing, but also independent from it.

Kathy Fahey (Nov. 2004 speechpathology.com)

Bottom-up vs top-down information processing

- In the 1980s, researchers and theorists debated bottom-up information processing and top-down information processing explanations for language learning. The bottom-up theories emphasize accurate reception and perceptual processing of sensory information prior to its higher level analysis and construction of meaning.
- Top-down models of language processing emphasize the influence of higher order thinking (whole-to-part) over perceptual analysis. Schemes are learned through experiences and are used to make predictions about sensory information.
- Interactive theories of information processing combine the views of bottom-up and top-down processing theories that occur through parallel processing and add the active participation of the learner and the clarity of the linguistic and nonlinguistic information as important characteristics (Nelson, 1998).

Kathy Fahey (Nov. 2004 speechpathology.com)

"One of the main questions among professionals working with children with APD is whether the listening difficulties Are due to a specific auditory sensory processing deficit (bottom-up problem) or to a cognitive deficit (top-down problem)."

(DeWit et al., 2016)

In other words, is (C) APD modality specific, or is it a multi-modal deficit???

(e.g. Cacace & McFarland, 2014; Dillon, Cameron, Tomlin & Glyde, 2014; McFarland & Cacace, 2014; Moore, 2012, 2015; Moore & Ferguson, 2014; Moore & Hunter, 2013)

Given that much recent literature is suggesting CAPD is multi modal, both ASHA and AAA stated that recommendations should include bottom-up (i.e., auditory training) and top-down (e.g., language intervention, strategy instruction) activities to address the fundamental auditory deficits and related communication difficulties"(DeBonis,2015)

Co-morbidity

"Dawes and Bishop (2009) compared children with CAPD diagnosis to children diagnosed with dyslexia and found similarly elevated instances of attention, reading and language deficits in both groups"

Co-morbidity

"Further, Kelly et al. (2009) found that 76% of a sample of 68 children with suspected auditory processing disorder also had language impairment. Therefore, more than half (53%) demonstrated reduced sustained auditory attention and 59% demonstrated increased auditory memory".

Co-morbidity

"Ferguson et al. (2011) concluded that "the current labels of CAPD and SLI (specific language impairment) may, for all practical purposes, be indistinguishable"(p.225).

Co-morbidity

- "Wallach (2011) concluded that children diagnosed with CAPD likely have disorders of a broader nature that would best be assessed by a multidisciplinary team".

Research Implications for Evidence Based Practice Intervention

Fey, Richard, Geffner, Kamhi, Medwetsky, Paul, Ross-Swain, Wallach, Frymark & Schooling Systematic Review (in LSHSS July, 2011)

Fey et al. (2011), completed a review of all peer-reviewed articles published between 1978 and 2008, which yielded 25 studies for analysis that used auditory or language interventions with school-aged children. Some support exists for the claim that auditory and language interventions can improve auditory functioning in children with APD and those with primary spoken language disorder. There is little indication, however, that observed improvements are due to the auditory features of these programs.

Response (to Fey's previously cited work) in LSHSS Vol 43 July 2012 by Bellis, Chermak, Weihing, & Musiek

- Points were argued that the research questions posed by Fey's literature review were not felt to address the efficacy of TRUE auditory interventions in remediation of auditory difficulties in children with (C)APD.
- Counterpoint by Fey (same LSHSS issue) suggested that "if auditory training leads only to auditory improvements, there is little reason for SLPs to be interested in the outcomes of auditory training research." (p. 390) "it is unlikely that an IEP goal of changing the latency or amplitude of a brainstem or cortical EEG waveform would be acceptable to the school, the SLP or the family"
- Fey, Kamhi & G. Richards' rebuttal maintained their viewpoint that although "some interventions that are principally auditory MAY provide limited benefit in auditory function & phonemic awareness... but no evidence supports they improve language or academic outcomes for children diagnosed with (C)APD.

Strong, Torgerson, Torgerson and Hulme (2011)

A systematic meta-analytic review by Strong, Torgerson, Torgerson, and Hulme (2011) led researchers to conclude that evidence does not exist to suggest that Fast ForWord is effective for remediating reading or language deficits.

Loo, Bamiou, Campbell and Luxon (2010)

Loo, Bamiou, Campbell and Luxon (2010) in a systematic review of studies that used computer-based auditory interventions in children with language, learning and reading difficulties, (that have also recently been recommended for children with a specific diagnosis of auditory processing disorder, despite limited research evidence to support this) concluded that positive effects on language and reading are not noted. This still is an area of contention, however, in the literature aimed at children who exhibit phonological awareness deficits.

Research re: electrophysiological changes in children with CAPD

W.J Wilson, Arnott, and Henning (2013) described the evidence that auditory training results in quantifiable electrophysiological changes in children with CAPD is limited

Miller (2011) suggested that the inconsistent correlations between the electrophysiological data and behavior changes after intervention make definitive conclusions about causality difficult.

Ahmed al 2014

- Ahmed and colleagues (2014) identified factors that may underlie the deficits in children with listening difficulties, despite normal pure-tone audiograms and labeled them suspected APD (susAPD) and aimed to clarify the role of attention, cognition, memory, sensorimotor processing speed, speech and non-speech auditory processing in susAPD.

Ahmed continued

- They performed a factor analysis of outcomes from 110 children (68 males, 42 females; aged 6 to 11 years) with susAPD on a widely used clinical test battery (SCAN_C) and a research test battery (IMAP) that have age-based normative data.
- Three factors that were extracted:
 - 1. general auditory processing
 - 2. working memory and executive attention
 - 3. processing speed and alerting attention

Impairments solely related to the "general" auditory processing factor were not common

EBP for Language outcomes in response to language/auditory therapy treatment techniques in children with (C)APD

(Ollier, Pozniak, Prokop, Williams, Coen-Cummings and Timmler, poster presentation at 2016 ASHA)

I led a group of Miami University graduate students in an EBP research study using four key word formulas, (terms related to auditory processing, intervention, and language outcomes.)

PICO Question:

"Among individuals diagnosed with (central) auditory processing disorder (C)APD, what language/ auditory therapy treatment techniques are effective in improving language outcomes?"

Method

A systematic review was completed from PubMed, CINAHL, Cochrane, PsycINFO, ERIC, Google Scholar, and ASHA Wire and 2380 peer-reviewed articles (1978-2008) written in English were reviewed, 330 articles were analyzed and 7 were utilized.

Inclusionary criteria included children ages 6- 12 years old with a diagnosis of (C)APD and/or spoken language disorder . Exclusionary criteria included studies with participants who had co-occurring conditions such as Attention Deficit or Hyperactivity Disorder or Autism Spectrum Disorder.

Results (Ollier et al.,2016)

- **Earobics:** Both reviews included limited evidence for the efficacy of improving language with no clear functional benefits for overall language outcomes found. The exception to this was phonological skills, which were the only consistent language skill that resulted in gains after the intervention
- **Fast ForWord:** Of the twenty-three studies reviewed, sixteen studies reported statistically positive gains in language outcomes. More positive effects were observed in receptive language measures, than in expressive language measures.
- **FM Systems:** Significant gains were exhibited in language outcomes in both studies, however, different aspects of language were measured between the two. Therefore, general conclusions cannot be drawn as both studies must be analyzed separately. The results suggest that, a case can be made for using FM systems as a compensatory intervention for some children with a diagnosis of (C)APD.

Results

Non Speech & Simple Speech: Loo et al., 2010: Did not report overall significant group results, but did have individual participants make significant gains in language skills
McArthur 2009: Intervention was not found to change reading, spoken language or attention skills in children with (C)APD. **Sharma et al., 2012:** Improvements were seen in the areas of frequency pattern testing, understanding concepts and directions, sentence recall, and general receptive and core language skills, as measured by the Clinical Evaluation of Language Fundamentals-four (CELF-4) (Semel, Wiig, & Secord, 2003)

Tomatis: McArthur (2009) came to the conclusion that the results of this individual study were inconclusive since the authors did not determine if participants in the study had poor vocabulary skills prior to intervention and therefore sufficient evidence is not present to come to a conclusion about the efficacy of the Tomatis Method's impact on language skills.

Results

Speech in Noise & Dichotic Listening: Treatments were found to be effective for individuals with (C)APD, however, findings should be taken with great caution due to inconsistency of results. In addition, more information is needed about whether the gains observed resulted in functional outcomes that could be seen by patients and families.

Language Training: From the information gathered in these two studies, there is insufficient evidence about the clinical and functional effectiveness of language training for individuals with (C)APD.

Conclusion

- At this time, there is insufficient evidence and a lack of consensus to make specific recommendations regarding the most effective treatment of (C)APD.

Limitations:

- Small sample sizes
- Lower quality research designs (e.g., case study)
- Short treatment periods
- Limited or no control for various nuisance variables such as consistent treatment environments
- Varying definitions of (C)APD
- Varying assessment protocols

EBP interventions for (C)APD... do they exist?

In a review by Kamhi (2011) of the evidence for auditory processing disorder, states there is little evidence that auditory perceptual impairments are a significant risk factor for language and academic performance and there may be limited evidence that auditory interventions provide any unique benefit to auditory, language or academic outcomes.

They conclude that SLPs should treat children who have been diagnosed with APD the same way they treat children who have been diagnosed with language and learning disabilities.

So where does this lead the treating SLP?

Kamhi (2011) encourages clinicians to consider viewing auditory deficits as a processing deficit that may occur with common development language and reading disabilities rather than as a distinct clinical entity.

W. J. Wilson and Arnott (2013) go as far to suggest that, given that their review of 150 sample records of school children who completed at least 4 CAPD tests showed the rates of audiologist's diagnoses to vary from 7.3% - 96%, depending on the criteria used, it is recommended that "the use of CAPD as a global label be discontinued."

While Wallach (2011) makes a strong case for the critical role of language in speech perception, and suggest that (C)APD assessment results are not confined to auditory skills areas and reflect broader underlying problems in language comprehension and metalinguistic awareness.

Focus on Identifying Students who have general listening deficits

Given these uncertainties that continue to remain, despite great efforts of many researchers to determine a definitive definition, assessment battery and treatment recommendation for the treatment of children who may have undiagnosed listening and communication deficits, it is suggested we focus on identifying students/children who have general listening deficits.

APD research of the 1990's suggested treatment protocols based upon "sub-profile" categorization

- The sub-profiles were derived from research data that applied factor analysis to audiological (and various multi-disciplinary) test findings, resulting in APD "patterns"
- While these findings are still relevant because they provide "clues" for associated disciplinary evaluation (speech-language pathology, psychology, OT/PT, etc.), **the research now suggests that treatment focus should be deficit-specific and structured by a top-down** (Ferre, 2002), or **bottom-up framework** (Bellis, 2003; Chermak, 2007; Ferre, 2006)

Evidenced-based Practice

(from: Differential Processing Training Program, by Kerry Winget)

Skills

- Auditory Processing
- Listening

Grades

- K through 12
- K through 7

Evidence-based Practice

Identified in the American Speech-Language-Hearing Association Technical Report on Central Auditory Processing Disorders (Lewin and Ingemansson, 2005), the Clinical Guidelines of the American College of Speech & Language Therapists (American Speech-Language-Hearing Association, 2005), and research conducted by Chermak and Mackel (2003), the following therapy principles are supported:

- The ability to process speech to discriminate them, recognize, and to interpret them normally are critical skills for speech and language development.
- Intervention for auditory processing disorders using direct skills remediation and auditory training should incorporate a challenge of speech, signal and auditory hearing elements.
- Auditory training activities should include acoustically controlled tasks of sound intensity, frequency and duration discrimination, as well as sound pattern recognition and word recognition.
- Recognition of auditory information in background noise enables functional listening requirements in the classroom, community, and home environments.

The activities in this book incorporate the above principles and are also based on expert professional practice.

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Treatment Plan's intentions

Your treatment plan/therapy goals should remain focused on improving the child's deficits (whether auditory, phonological awareness, or language-based) and be driven by evidenced-based practices.

Reference the Auditory Processing Therapeutic Goal Examples handout (.pdf)

Order of presentation

- Although a bottom up approach would indicate we'd begin with LTG 4 (to address BASIC auditory skills), many children diagnosed with APD do not have this issue, and instead have listening deficits when in the presence of background noise.
- Thus, we will follow the handout out, in order, by common symptomology

Therapeutic Goal Examples Handout

Problem Statement:

Deficit in auditory figure-ground skills.

This issue will impair the child's ACTIVE listening when in an environment containing background noise.

Mgt strategy for a deficit in auditory figure ground (extracting a primary message from background noise)

Classroom

- Change the physical environment
 - place rubber tips or tennis ball halves on chair legs and desks
 - Place sound absorbing rubber or felt insulation around windows and doors
 - Use bookshelves as room dividers
 - Use corkboard as bulletin boards
 - Ceiling tiles, carpeted floors, cushioned chairs, curtains

Modifying the acoustics in the physical space of the classroom is the start...but now THERAPY begins!

The SLP's treatment is critical to the child's classroom success because:

"Listening/Attending" skills must be taught if preferential seating is to have an effect (for specific treatment ideas reference Chapter 2 "attending skills" in A Metacognitive Program for Treating APD, Hamaguchi, P. M. (2003)

Auditory Figure Ground Deficit (cont)

Improve acoustic access to auditory information

- Flexible preferential seating
- Personal FM systems (for elementary aged students) directed at stronger ear (refer to child's audiology report)
- Soundfield amplified classroom
- Repeat information only if you can say it more clearly, otherwise, rephrase using additional language cues
- Provide visual cues to augment auditory information

Environmental Modifications Signal to Noise Ratios

(from Geffner, ASHA Schools Conference, 2005)

- Adults need at least a +6 dB signal-to-noise ratio for maximum communication
- Children with normal hearing acuity require a +10 dB signal-to-noise ratio (Crandell & Smaldino, 2004)
- Children with "high risk" listening conditions require +12 to 20 dB s/n ratio

The TYPE of FM system is typically recommended by the audiologist

- Due to fiscal restraints, a school district will often purchase a toteable device under the premise that it can meet the needs of several students, however, the age level is an important consideration, as is the continuity of a clear acoustic signal throughout a child's academic day. Providing clear and precise auditory information for some classes and not others may result in a child exhibiting anxiety or decreased attention to the teacher's voice when the message is degraded. That circumstance could be legally dangerous for the school district if they are not providing "equal access to education" as PL 42-140 demands.
- A district's purchase of a toteable FM system intended for use with multiple older elementary level students is likely to be a poor fiscal decision if the device is not effectively used.

Problem statement 1: Auditory Figure Ground

- Compensatory Strategies
 - Active vs passive listener
 - Recognition of adverse listening conditions and how to address them
 - Methods of clarification of auditory instructions
 - Using visual cues to augment auditory information
 - Self-advocacy
 - Use of an FM system in the classroom

Treatment Programs to Improve Auditory Figure Ground Skills

The Assistive Listening Device is a beginning, but auditory training is also necessary, first under quiet conditions then in background noise

LTG 1: to improve active listening
(audiological data will show deficits in auditory figure ground)

STG a: Extracting a primary message when background WHITE NOISE is present

LTG 1: to improve active listening

STG b: Extracting a primary message when background non-lyrical music is present

LTG 1: to improve active listening

STG c: Extracting a primary message when background UNKNOWN lyrical music is present

LTG 1: to improve active listening

STG c, step 2: Extracting a primary message when background WELL KNOWN lyrical music is present

LTG 1: to improve active listening

STG d: Extracting a primary message when background verbal message of disinterest is present

LTG 1: to improve active listening

STG d, step 2: Extracting a primary message when background verbal message of INTEREST is present

Goals 2 – 7 will be covered in PART TWO

Language Interventions for Children with an APD diagnosis Part 2
KSHA Feb. 23, 2018
9:45 am – 11:15 am

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Apps to use for increasing Active Listening Skills
by Martha Coen-Cummings, Ph.D CCC-S

- 1) http://virtualspeechcenter.com/App/auditory_processing_studio_app
Auditory Processing Studio employs a bottom-top approach. Auditory Processing Studio includes 2450 stimuli in the following activities: - Auditory Discrimination- 16 levels of difficulty. Each level contains 50 trials; making a total of 800 stimuli. - Auditory Closure - 17 levels of difficulty. Each level contains 50 trials; making a total of 850 stimuli. - Phonological Awareness- 16 levels of difficulty. Each level contains 50 trials; making a total of 800 stimuli. - Figure-Ground - The above activities can be practiced in the presence of competing noise.

Auditory Processing Studio is easy to navigate and allows users to employ several tools, enabling them to perform the following tasks: - Enter multiple students - Change settings - Select levels of difficulty - Select auto-scoring - Select alternate counts for multiple students - Enable or disable the reward - Enable or disable feedback sounds - Track correct and incorrect responses - E-mail results at the end of the game



- 2) **Auditory Workout**, another app developed by Virtual Speech Center, which targets the top-down approach to auditory processing disorder. (The Auditory Workout app was cited in the book by Dr. D. Geffner and Dr. D. Ross-Swain, “Auditor Processing Disorders: Assessment, Management and Treatment”.) Given our current understanding of language disorders and central auditory processing, techniques that facilitate language competence are likely to improve the auditory processing of language and vice versa (Bellis, 2009).



Auditory Workout allows children to follow increasingly longer and more complex directions and includes more than 13 levels of difficulty.

The directions are divided into four categories:

- Basic and Spatial Directions
- Quantitative directions
- Temporal directions
- Conditional Directions

Auditory Workout is easy to navigate and allows users to employ several tools, enabling them to perform the following tasks:

- Enter multiple students
- Change settings

- Select levels of difficulty
- Select auto-scoring
- Select alternate counts for multiple students
- Enable or disable background noise feature
- Enable or disable rewards, the basketball, and/or the games
- Enable or disable feedback sounds
- Track correct and incorrect responses
- E-mail results at the end of the game

3) **Auditory Memory Ride** is an App that allows practice of auditory memory by recognizing and recalling the following:

Digits and numbers (e.g., recalling three digits or recalling two largest digits in the field of five (9 levels of difficulty)

Words and sentences (e.g., recognizing/recalling two unrelated words or recognizing/recalling five to seven-word sentences (10 levels of difficulty)

Details (e.g., recognizing/recalling two objects with two details (four levels of difficulty)

Paragraphs (six levels):

Level 1 Yes/No Questions—three to four sentence paragraphs

Level 2 Multiple Choice Questions—three to four-sentence paragraphs

Level 3 Open-Ended Questions—three to four-sentence paragraphs

Level 4 Yes/No Questions—five to seven-sentence paragraphs

Level 5 Multiple Choice Questions—five to seven-sentence paragraphs

Level 6 Open-Ended Questions—five to seven-sentence paragraphs



Research is still needed in the area of central auditory processing disorder; however, most individuals will benefit from procedures that target the acoustic signal and from procedures that target language. (ASHA 2005). American Speech-Language-Hearing Association. (2005). (central) auditory processing disorder [Technical Report]. Available from www.asha.org/policy.

- 4) **School of Multi Step Directions** app was created by an SLP for children ages five to 12, to improve auditory comprehension of multi-step directions in the academic context. School of Multi Step Directions app is built around the theme of school and allows children to follow increasingly longer and more complex multi-step unrelated directions in three different “classroom” settings such as English, Math and Chemistry Lab. The children are welcomed by the professor, who encourages them to work hard as they will be rewarded with “recess,” during which they can play a game of pong.



School of Multi Step Directions app includes over 1000 recorded directions. The directions included in this app are:

English classroom

2-step, 3-step and 4-step of unrelated directions with multiple levels of difficulty. Stimuli include: pictures, letters, and written words with color, size, and temporal concepts. For example, “Underline the red letter A and erase the blue letter C.”

Math classroom

2-step, 3-step and 4-step of unrelated directions with multiple levels of difficulty. Stimuli include: shapes, number, concepts, size, color, odd, even, bigger than, and smaller than. For example, “If 10 is bigger than 9, highlight 4 and underline 6, if not, cross out 2 and touch 1.”

Chemistry Lab

2-step, 3-step and 4-step unrelated directions with multiple levels of difficulty. Children will have fun “making experiments.” For example, “Set the temperature to cold, shake the flask, and add water to the cup.”

Auditory Figure-Ground

The above activities can be practiced in the presence of competing noise, making it one of many ideal Apps for children with (Central) Auditory Processing Disorder.

SOURCE for above 4 Apps: <http://virtualspeechcenter.com/app>

5) **Functional Listening** By Virtual Speech Center Inc.

Functional Listening app includes listening exercises with everyday messages that might be heard throughout the day at different settings such as store, doctor’s office, school, etc. \$14.99



6) **Following Directions** (school-aged to adult) by Teach Speech Apps \$3.99

Following Directions by Teach Speech Apps helps develop the skills needed to help boost memory, motor, and auditory processing skills with simple one step directions, two step complex commands including (first / then, before / after), inclusion / exclusion, conditional and motor-skill based directions. This app is great for working on language, auditory processing, vocabulary, memory, receptive language, attention and focus.



This interactive app helps individuals learn following directions in a fun and engaging way. Four activities include:

- One step directions - drag and drop
- Two step directions - choose from 4 pictures
- Inclusion / Exclusion - choose from 6 pictures
- Motor-skill based and conditional directions
- Voice rate option
- Aligned with the Common Core Standards
- No ads
- No in-app purchases



Home Program for Auditory Training

Created by Martha Coen-Cummings, Ph.D.

This **Auditory Training Home Program** is designed to give specific directions for what the parent can do to help their child attend to a message when background noise occurs.

- The listening tasks are provided in an order of increasing difficulty.
- All listening activities are presented without headphones at a comfortable listening level.
- Begin each practice time by having the child complete the task in a **quiet** environment.
- The child should get 80% to 100% in **quiet** before background noise is added.
- Listening tasks can be done on the computer or presented by the parent.

Please use the tasks presented below. Other activities that involve direction following or sound discrimination can be added for variety.

Listening Tasks:

1. **Earobics: Step I or StepII**- (Elementary or Adolescent version)
Cognitive Concepts, Inc. (1-847-328-8099); <http://www.earobics.com/>
Works on: auditory development and sound awareness skills.
2. **Thinkin' Things I**: “Fripples” or “Oranga” games.
Edmark: <http://www.riverdeep.net/edmark/>
Works on: pitch pattern memory, auditory memory for language, following directions with varied pitch/accents speakers.
3. **Guess Who?** or **Guess Where?** Games
Mattel: <http://www.mattel.com/>
Works on: auditory memory for language, identification of “key” facts, drawing conclusions.
4. **Barrier Games** using stickers or “**Colorforms**”.
Two player Game. One person is the “Speaker” the other person is the “Listener”. Each player gets a background and a set of stickers/pictures. A barrier is placed between the players, so that each player cannot see the other player’s picture. The “Speaker” describes what sticker to place on what position on the board. The “Listener” follows the directions for a total of five stickers. Once the directions are followed, the barrier is removed.
Idea of the game: To have matching pictures.
“Colorforms”: www.areyougame.com
Works on: auditory memory for language, identification of “key” words, following directions

Listening Tasks continued

5. **Barrier Games**-Draw the picture described by the verbal directions given.
“Find Your Way with Words” by Jan Danielson
Linguisystems, Inc.; www.linguisystems.com
Works on: auditory memory for language, identification of “key” facts, direction following.

6. **“I Spy” Computer Games.** Modify by covering the words at the bottom of the screen. Listen to the directions that are broken into 3 sequential items via the parent turning off the computer speakers once the 3 items are heard. The child then repeats the 3 items aloud prior to clicking on their location on the screen. Parent repeats this sequence with the child listening to the 2nd group of 3 sequential items stated, then again turns off the speaker so that the child can repeat THAT group of 3 items.
Scholastic, Inc.; www.scholastic.com/ispy
Works on: auditory memory for language, identification of “key” words, following directions

Levels of Difficulty:

- Use each level for one to two weeks
- Progress through each noise type when the child can complete the task with 80% accuracy.
- To progress the noise level should be almost the same volume as the main message.

Level 1 White Noise: Fan noise or radio between channels (static)

- a. **White Noise-(barely able to hear):** Main message is loud.
- b. **White Noise- (audible):** Main message is clearly louder than the noise.
- c. **White Noise-(loud):** Almost as loud as the main message.

Level 2 Non-lyrical Music- No Singing: Instrumental classical or jazz music.

- a. **Non-lyrical-(barely able to hear)**
- b. **Non-lyrical-(audible):** Main message is clearly louder than the music.
- c. **Non-lyrical-(loud):** Almost as loud as the main message.

Level 3 Unknown Lyrical Music-Music with singing, but not music the child knows/likes.

- a. **Unknown Lyrical Music-(barely able to hear)**
- b. **Unknown Lyrical Music-(audible):** Main message is clearly louder.
- c. **Unknown Lyrical Music-(loud):** Almost as loud as the main message.



Listening Tasks continued

- Level 4 Well-known Lyrical Music-** Music well-liked by the child.
 - a. Well-known Lyrical Music-(barely able to hear)**
 - b. Well-known Lyrical Music-(audible):** Main message is clearly louder.
 - c. Well-known Lyrical Music-(loud):** Almost as loud as the main message.
- Level 5 Boring Competing Message-**Talk Radio, Book on tape, TV show (not in view)
 - a. Boring Competing Message-(barely able to hear)**
 - b. Boring Competing Message-(audible):** Main message is clearly louder.
 - c. Boring Competing Message-(loud):** Almost as loud as the main message.
- Level 6 Interesting Competing Message-** Favorite TV show, favorite story on tape ...
 - a. Interesting Competing Message-(barely able to hear)**
 - b. Interesting Competing Message-(audible):** Main message is clearly louder.
 - c. Interesting Competing Message-(loud):** Almost as loud as the main message.

Home Program GAMES handout to promote ACTIVE LISTENING

1. A RHYME IN TIME:

Book = **A Rhyme in Time: Rhythm, Speech Activities and Improvisation for the Classroom** by Doug Goodkin (available online for approx. \$12 – designed for music teachers) This book contains rhymes (familiar and non familiar nursery rhymes, some in Spanish) with music and activities. SLP says/sings a rhyme changing the rhythm, pitch or frequency.

This task requires patient to use frequency discrimination and auditory closure skills (e.g., if you have a list of 4 rhyming words and then leave out one word and have the child fill in the blank).

Also available is a board game:

Information	
	<p>Designed By: N/A</p> <p>Published By: Poet And Didn't Know It Co.</p> <p># of Players: 2 - 8</p> <p>Playing Time: 120 Minutes</p> <p>Mfg Suggested Ages: [Edit]</p> <p>Category: Party Game Music</p> <p>Mechanics: Voting Co-operative Play Roll and Move Singing</p>
<p>Browse 3 Images »</p> <p>[Buy an Ad] [View All]</p>	<p>Other Names: N/A</p>

Description: A party game along the lines of Pictionary. Only this time, as you move around the board, you or your team have to complete rhymes in different ways.

In the first, you are given a word (HAM, for example) and have to create a four line rhyme: Have you seen my brother Sam? Lately he's been such a ham. He was desperate for money, and in a jam. So he went on a comedy show dressed as madame.

Players then vote on whether you told a good story. If you did, keep going. If not, pass your turn. Other challenges include making a rhyme using 4 of 6 given words, an all play category where everyone takes turns rhyming a particular word until someone can't, and the last which requires you recall two line rhymes from literary or musical works (If you step on a crack, you'll break your mother's back, or, All the way with LBJ). It ends by answering a challenge given by your opponents.

Auditory Processing or Related Skill = speech sound discrimination, auditory closure

2. BATTLESHIP:

Board game for children 8 years old and up.

Description: The game is played on four square grids, two for each player. The grids are typically square—often 10×10—and the individual squares in the grid are identified by letter and number. On one grid the player arranges his own ships and records the shots by the opponent. On the other grid, the player records his own shots.

Before play begins, each player arranges a number of ships secretly on the grid for that player. Each ship occupies a number of consecutive squares on the grid, arranged either horizontally or vertically. The number of squares for each ship is determined by the type of the ship. The ships cannot overlap (i.e., at most one ship can occupy any given square in the grid). The types and numbers of ships allowed are the same for each player. These may vary depending on the rules.

After the ships have been positioned, the game proceeds in a series of rounds. In each round, each player has a turn. During a turn, the player announces a list of target squares in the opponents' grid which are to be shot at. If a ship occupies one of the squares, then it takes a hit. When all of the squares of a ship have been hit, the ship is sunk. After the target list has been given, the opponent then announces which of his ships have been hit. If at the end of a round all of one player's ships have been sunk, the game ends and the other player wins. If all of both players ships are sunk, the game ends in a tie.

The number of target squares that a player may shoot at in a given turn is determined by the condition of the players' own ships at the beginning of the round. Each player has many shots as he or she has vessels afloat in each turn. Thus each time a player's ship is entirely destroyed, that player has one fewer shot on all subsequent turns.

Variations: Many variations in the basic rules are possible, including the sizes of the grids, the numbers and sizes of the ships, the numbers of shots allowed, whether or not to declare when a ship has been sunk, and when hits are announced. Some of the variants simplify the game, which is useful for younger players or people with difficulties. If the game ends early, with both players having sunk the same number of ships, the player who sank the largest ship, or collection of ships wins. (For example, if each player sank 3 ships, and player one sank three small ships, and player two sank 3 larger ships, player 2 will win.)

This is a higher level language task and can be modified to include an auditory processing component (i.e., speech discrimination). The SLP could add a final consonant to the letters that are called (e.g., instead of “A, I” say “Ape, I” “Abe, I”, “Ate, I” etc). Changing the final sound and then having the child repeat it back to you

makes it a discrimination task. It could also be a binaural task if the SLP is in the observation room and presents the auditory information using an EduLink in the child's left ear. Auditory Processing or Related Skill = active listening, visual patterning, and integration.

3. BLIND MAN'S BLUFF:

Description: This is a [children's game](#) played in a spacious enclosed area, such as a large room, in which one player, designated as It, is either blindfolded or closes his or her eyes. The It player gropes around blindly and attempts to touch the other players without being able to see them, while the other players scatter and try to avoid and hide from the It player, sometimes teasing him/her to make him/her change direction. The game is a variant of [tag](#).

There are several versions of the game:

In another version, whenever any player is tagged by It, that player is out of the game. The game proceeds until all players are out of the game, at which point another round of the game starts, with either the first player or the last player to be tagged becoming the next It player.

In yet another version, It feels the face of the person tagged and attempts to identify the person, and only if the person is correctly identified does the person become It.

A children's game similar to blind man's bluff is [Marco Polo](#), with the main difference being that Marco Polo is played in the pool and the one that is "it" calls out Marco to which the other players reply Polo and as such give up their positioning by the use of their voice making it easier for the person who is it to go in the right direction.

This game targets localization and binaural interaction if one ear is occluded or an EduLink is used and the SLP is out of the room (would need a helper as the child is blindfolded). This game could be modified to target auditory discrimination and localization by adding environment noises (e.g., What's that Sound tape or a tape of cartoon voices) in different places throughout the room and having the child walk toward the sound and describe it.

Auditory Processing or Related Skill = localization, binaural integration.

4. BOBIT/BOBIT EXTREME:




Description: Recommended Age: 8 - 12 years

This is an electronic toy that challenges response time to pull, twist, and bop different parts of the toy. The extreme version adds two more tasks, more sounds, and a taunting, smart-aleck announcer who directs the game. As you get better, the game moves faster until you miss a beat and lose, accompanied by a fair amount of noise and ridicule from the toy. People who don't think they'd ever want to play Bop It Extreme won't be able to put it down; it instills a compulsive need to bop till you drop. It can be played in a group and makes a good party game.

There are 3 ways to play this electronic talking game – alone, head to head, or with a group. It is good for auditory memory but the game can not be slowed down or modified so it may not be useful for therapy purposes.

Auditory Processing or Related Skill =integration and vigilance.

5. BRAIN WARP:

Information	
 <p>Browse 1 Images »</p> <p>Ad sponsored by: BoardsAndBits</p>	Designed By: (Uncredited)
	Published By: Tiger Electronics
	# of Players: 1 - 6
	Playing Time: 15 Minutes
	Mfg Suggested Ages: 10 and up [Edit]
	Category: Electronic Action/Dexterity Memory
Mechanics: Memory	

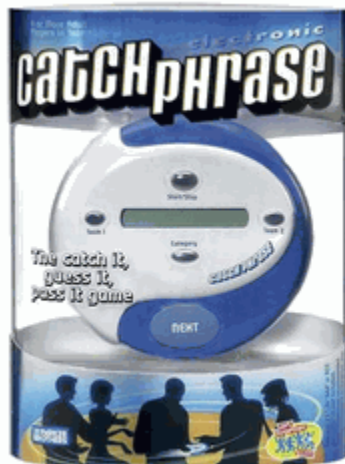
Other Names: N/A

- Description:

Brain Warp is an electronic memory game with voice commands. It is shaped like a sphere with 6 knobs sticking out of it. The knobs all have different colors and are numbered 1-6. There are 6 different games to play. In the first game, the voice calls out a color and the player must quickly rotate the Brain Warp until the color called is facing upward. The next game is the same only it uses the numbers. Other games include: colors and numbers, combinations of colors and numbers, code buster, and a passing game in which players add to an ever growing sequence. The Brain Warp calls out the winner at the end of each game.

It was felt that this game may be frustrating for therapy purposes as the tones get faster and faster with each level. The speed can't be modified. May be more suitable for junior high or high school age clients.

Auditory Processing or Related Skill =integration, vigilance, problem solving.



The game is played in two teams. The goal is to get your team to say the word displayed in the disc. One member of a team starts the timer and tries to get his or her team to guess the displayed word. A clue-giver can make any physical gesture and give almost any verbal clue. However, one may not say a word that **rhymes** with the word, give the **first letter** of the word, say the number of syllables, or **say part of the word** in the clue (e.g. "worry" for "worry wart"). When the team guesses

correctly, the other team takes its turn. Play continues until the timer runs out. The team not holding the disc when time runs out scores a point. They also have one turn to guess the word that the other team did not guess. A correct answer earns a bonus point. The first team to seven points wins.

Electronic version (shown above)

The modern version, also known as **Electronic Catch Phrase** is an electronic game (in a device similar in appearance to the original version) with integrated word list, timer and

scoring. The game unit has a dot-matrix LCD screen to display words, and buttons to start the timer, advance play, and assign points to teams.

Recently, a second edition of the electronic game was released, featuring a backlit LCD screen, a visual score display rather than the auditory score system, and a redesigned overall game look.

Teams consist of every other person. Timer gets faster and faster. Similar to Password. Good for group therapy.

Adult game - No junior high version available. Auditory Processing or Related Skill =integration, vocabulary

Development, output.

7. CLEVER ENDEAVOR:



Designed By: N/A

Published By: [MindGames, Inc.](#)

of Players: 2 - 8

Playing Time: 45 Minutes

Mfg Suggested Ages: 12 and up [\[Edit\]](#)

Category: [Trivia](#)

Description: Clues are read from the cards while players try to guess what they are referring to. First player to the center of the board wins.

This game is similar to 20 questions. It involves solving mystery puzzles. It is more of a language processing task unless presented with background noise.

Auditory Processing or Related Skill = metalinguistic strategies, critical listening.

- 8. FEELY BAG:** *(similar to Ned's Head) or Photo Object Beginning Lotto - Initially it's a language task. The child takes each item midline with both hands and hold object and describes its texture, size, and shape and put it in bag. Then have the child reach in without being able to see the objects and choose one and describe what they are touching. Use left hand to make it a binaural task.*

Another variation = Verfuhltnochmal! –This game has one bag for each item. Sensory loaded/language processing.

To make this task an auditory binaural integral task, the SLP will have the information presented into the left ear only. SLP is in the other room (using an Edulink) with feely bag describing each object and then telling the child to find the card and put it on slot #1.

Auditory Processing or Related Skill =interhemispheric communication.



Ned's Head

- 9. MAD GAB:** Game by Mattel. Ages: 10 or older.



Published By: [Patch Products](#)
[Mattel](#)

of Players: 2 - 12

Playing Time: 45 Minutes

Mfg Suggested Ages: 10 and up [\[Edit\]](#)

Category: [Word](#)
[Party Game](#)

Description:

Read a group of simple words aloud, like "ASK RUDE ARRIVE HER". Do you "hear" the answer? Try saying them again. Sound familiar? Quick, the timer's tickin'. Did you hear yourself say "A Screwdriver"?!

You and your teammates have 30 seconds to sound out three puzzles. Guess right and snatch that card! Miss it and the other team can steal the point!

O.K., the timer is set, the card flipper is loaded, and everyone's ready for a laugh riot! Just remember, that when it comes to scoring points in MAD GAB...

"It's Not What You SAY, It's What You HEAR!"

Traditional game requires at least 2 teams and each team has 2 minutes to sound out three puzzles. The puzzles, also known as mondegreens, contain small words that, when put together, make a word or phrase. Good game if child has temporal patterning intact. For younger kids, you could adapt it to an auditory closure task.

Auditory Processing or Related Skill = temporal patterning, metalinguistic skills.

10. MUSICAL CHAIRS:

Description: Musical chairs is a [game](#) played by a group of people (usually children), often in an informal setting purely for entertainment such as a [birthday](#) party. The game starts with any number of players and a number of [chairs](#) one fewer than the number of players; the chairs are arranged in a circle (or other closed figure if space is constrained; a double line is sometimes used) facing outward, with the people standing in a circle just outside of that. A non-playing individual plays recorded [music](#) or a musical instrument. While the music is playing, the players in the circle walk in unison around the chairs. When the music controller suddenly shuts off the music, everyone must race to sit down in one of the chairs. The player who is left without a chair is eliminated from the game, and one chair is also removed to ensure that there will always be one fewer chair than there are players. The music resumes and the cycle repeats until there is only one player left in the game, who is the winner.

Good for group therapy. This game can adapted by playing conversation instead of music and having the child stop when they hear a key word or phrase. The child could also listen for volume change. This game could be used for training metalinguistic cues in the following ways: 1) Listening for silence in a sentence – where there would be a pause. 2) Listening for intensity/temporal changes. 3) Listening for a key word in a paragraph (vigilance test).

Auditory Processing or Related Skill = vigilance.

11. NAME THAT TUNE:

Description: **Game Play:** Two contestants competed, a returning champion and a challenger in the daytime edition. Round One was a simple best three-out-of-five competition in naming tunes, where the two players would run to ring a ship's bell when they knew the tune the orchestra was playing. (This was a holdover from the 1950s version, and eventually was replaced with a lockout buzzer.) The show occasionally used "The Money Tree" instead, where one contestant started pulling dollar bills from a tree-like device while the other contestant tried to name a tune, with the contestant who had the least money pulled from their tree win the round.

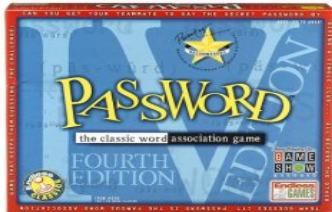
Round Two was "Melody Roulette," in which the host spun a wheel determining the dollar value of the tune before it was played. Round Three was "Bid a Note," where contestants could hear a maximum of seven notes before naming the tune, and bid each other downward to determine who needed the fewest notes to name the tune.

The first and second rounds were worth ten points apiece, and the third round was worth twenty. If the contestants tied after the first two rounds (two tunes apiece, with neither one knowing one tune), they each received five points. The winner of each round also won a prize. The contestant with the most points at the end won the game. If they were still tied, one final tune was played and the first to identify it correctly was the winner.

End Game: In the "Golden Medley," the champion had 30 seconds to identify seven tunes. They won prizes for every tune they did name, to a maximum of \$2,000 in the daytime version, more in the evening version. Contestants could pass on any tune, and a wrong identification ended the game.

Auditory Processing or Related Skill = interhemispheric transfer of function. Modify by playing stimulus in one ear – occlude right ear. Play music in sound field. Start with nursery rhymes or common songs. Could then play with familiar/popular music. Good game for families to play at home with kids.

13. PASSWORD:



Descriptions: 4 or more Players. Ages 12 & up

Each team is composed of one 'A' and one 'B' player. The A's (two) sit side-by-side facing their 'B' partners. A's start as givers of clues on the word list. Both 'A' players look at the same Password in their card holder. The object of the game is to score points by guessing the correct Password from one word clues given by partner.

Auditory Processing skill = vocabulary building, metalinguistic skills.

14. RED LIGHT- GREEN LIGHT:

Description: In this game, one person plays the "stop light" and the rest try to touch him. The stop light faces away from the line of kids and says "green light." Then the kids are allowed to move toward the stop light. At any point, the stop light says "red light!" and turns around. If any kids are caught moving, they are out. The stop light wins if all the kids are out before anyone is able to touch him. Otherwise, the

first player to touch the stop light wins the games and becomes the “stop light” for the next game.

Auditory Processing or Related Skill = vigilance, active listening. This game could be modified by using rhyming words or voiced/voiceless sounds as the stimulus. SLP could use carpet squares in circle in group therapy setting. May be helpful to use Edulink to clarify signal of rhyming words.

15. SCATTEGORIES:



Scattergories

Scattergories Game Milton Bradley
Hasbro Games.

Scattergories, the classic fast-thinking categories game.

Players try to match categories using words that start with the

same letter.

Ages 12 to Adult. 2-6 Players.

It's a word game of categories where all your answers have to begin with the same letter. For instance, you roll the big 20 sided die and it comes up with the letter "R". Then fill in a word beginning with the letter "R" for each of the 12 categories like: An ice-cream flavor. A president. A thing you find in the refrigerator. And so on until the buzzer sounds after 3 minutes. Then, compare your answers to the groups. Duplications score nothing, but original answers will get you a point.

Child needs to be able to write to play this game. Modifications: 1) Background noise could be added. 2) Could target binaural integration if SLP is in another room with Edulink and the child writes down the category that SLP states – e.g., “things you see in Africa” and the child writes down 3 things. SLP presents multiple categories.

Auditory Processing or Related Skill: vigilance, vocabulary building, metalinguistic strategies.

16. SCRABBLE-

Scrabble



A game of Scrabble in progress

Players	2-4
Age range	8+
Setup time	2-5 minutes
Playing time	NSA tournament game: ~50 minutes
Random chance	Medium
Skills required	Counting , Strategy , Vocabulary , Spelling

Description: **Scrabble** is a popular [word game](#) and [board game](#) in which 2 to 4 players score points by forming words from individual lettered tiles on a 15-by-15 game board. The words are formed across and down in [crossword](#) fashion and must appear in a standard [dictionary](#).

*Auditory Processing or Related Skill = integration, linguistic skills, visual patterning.
 This game may be useful for parents to play with child as “homework.” Not necessarily a useful auditory processing task for therapy.*

17. SIMON:



Simon is an [electronic game](#) manufactured and distributed by [Milton Bradley](#)

Description:

The game unit has four large buttons, one each of the colors [red](#), [blue](#), [green](#), and [yellow](#). The unit lights these buttons in a sequence, playing a tone for each button; the player must press the buttons in the same sequence. The sequence begins with a single button chosen randomly, and adds another randomly-chosen button to the end of the sequence each time the player follows it successfully. Gameplay ends when the player makes a mistake or when the player wins (by matching the pattern for a predetermined number of tones).

Auditory Processing or Related Skill = auditory - visual patterning. This game may be too fast for discrimination. It could be used for auditory memory of pure tones. Also, it is a good lead into an auditory memory task – could be used as a precursor. Good for a 5 minute warm up, vigilance task.

18. SIMON SAYS:

Description: Simon says is a [game](#) for three or more players (most often children). One of the people is "it" – i.e., Simon. The others must do what Simon tells them to do when asked with a phrase beginning with "Simon says". If Simon says "Simon says jump.", the players must jump (players that do not jump are out). However, if Simon says simply "jump", *without* first saying "Simon says", players do not jump; those that do jump are out. In general, it is the spirit of the command, not the actions that matters; if Simon says "Simon says touch your toes.", players only have to show that they are *trying* to touch their toes. It is the ability to distinguish between valid and invalid commands, rather than physical ability, that matters here.

It is Simon's task to try to get everyone out as quickly as possible, and it is every one else's job to stay "in" for as long as possible. The last of Simon's followers to stay in wins (although the game is not always played all the way through).

Auditory Processing or Related Skill = vigilance, active listening. This game could be modified by adding background noise or using the camera for binaural integration task with the SLP using the Edulink in observation room.

19. TABOO:



Description: **Taboo** is a [word guessing party game](#) commercially available from [Hasbro](#). The object of the game is for a player to have their partner guess the word on their card without using the word itself or five additional words listed on the card. Ages 12- Adult. Recommended for 4 or more players.

Auditory Processing or Related Skill = vocabulary building, metalinguistic strategies. This game is good for language therapy and building word finding and describing skills. It could be modified by adding background noise once child has success without noise present.

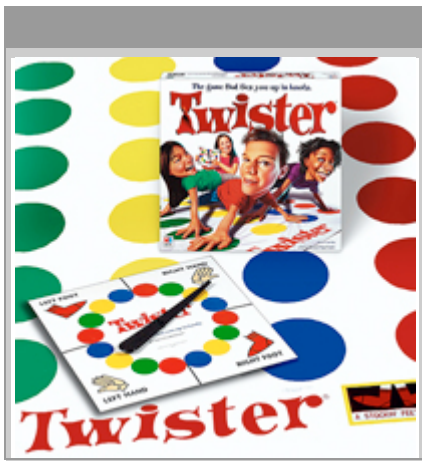
20. TELEPHONE GAME:

Description: Children sit in a circle on the floor. The leader whispers a sentence into the first child's ear. Then, that child will whisper the sentence into the next child's ear and so on. Continue the game until the last student has heard the sentence. He/she will then say the sentence out loud. The sentence won't be the same as the leader's original one.

Auditory Processing or Related Skill = attention, active listening, discrimination. This is a good game for group therapy. It could be modified to target binaural component by having the SLP in the other room with an Edulink. The lead person is given the target sentence. The lead person then passes the information into the child's weaker ear. The message will then continue around the circle and the last person reveals the sentence.

Do not use background noise with the game because children are speaking in a whisper.

21. TWISTER:



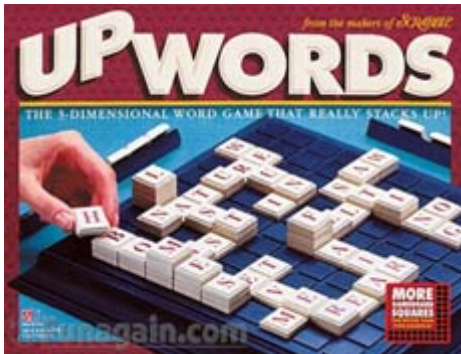
Description:

- Uproarious classic game of physical skill
- A spinner tells players where on the mat to place their hand or foot
- Develops skills in balance, coordination, and color identification
- For 2 to 4 players
- Ages 6 and up

This game could be modified by starting in a quiet room and targeting auditory decoding skills and then background noise could be added. SLP could also modify that plastic sheet by taking out the color component and adding pictures or minimal pair words on the circles (e.g., pin/bin) and then having the find the word that is said outloud. Auditory Processing or Related Skill =integration, critical listening.

22. UpWords

Upwords



Description:

Upwords, the 3-dimensional word board game that really stacks up! Players stack letters higher and higher to build layers of crosswords for the most points.

Auditory Processing or Related Skill =integration, visual closure. This task may be appropriate for “homework.” Have child give 2 words that rhyme.



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Language Processing Therapeutic Goals to Improve Active Listening

Martha Coen-Cummings, Ph.D. CCC-S

Problem Statement 1: Significant deficit in auditory figure-ground.

APD LTG 1 (AUDITORY FIGURE GROUND): To demonstrate improved auditory figure ground skills (extracting a primary message from background noise)

APD STG (AUDITORY FIGURE GROUND):

- a. To increase the ability to extract a primary message involving (auditory discrimination between minimal pair words, minimal pairs in phrases/sentences, recall of a series of words/phonemes/, following complex linguistic directions) using background white noise from 40% to 80% accuracy.
- b. To increase ability to extract a primary message involving (auditory discrimination between minimal pair words, minimal pairs in phrases/sentences, recall of a series of words/phonemes/, following complex linguistic directions) using background non-lyrical music from 40% to 80% accuracy.
- c. To increase ability to extract a primary message involving (auditory discrimination between minimal pair words, minimal pairs in phrases/sentences, recall of a series of words/phonemes/, following complex linguistic directions) using background lyrical music from 40% to 80% accuracy.
- d. To increase ability to extract a primary message involving (auditory discrimination between minimal pair words, minimal pairs in phrases/sentences, recall of a series of words/phonemes/, following complex linguistic directions) using a background verbal message from 40% to 80% accuracy.

*These goals can be splintered into specifically what **task** is involved: auditory discrimination between minimal pair words, minimal pairs in phrases/sentences, recall of a series of words/phonemes, or simply following complex linguistic directions. Specify the number of attributes or the grammatical construct (i.e. subordinate clauses) in the directions.

Problem Statement 2: Consistent and significant difficulty with auditory memory.



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APD LTG 2(AUDITORY MEMORY): To improve auditory memory for words and sentences.

APD STG (AUDITORY MEMORY):

- a. To increase auditory memory for a 5 or more word-related-string from 40% to 80% accuracy.
- b. To increase auditory memory for a 5 word-unrelated-string from 40% to 80% accuracy.
- c. To increase strategies (chunking, verbal rehearsal, etc) used for functional memory tasks for digits from 40% to 80% accuracy.
- d. To increase strategies used for functional memory tasks for word lists from 40% to 80% accuracy with and without visual cues:
 - i. Strategy of chunking
 - ii. Strategy of verbal rehearsal
 - iii. Strategy of visual imagery
 - iv. Strategy of location
- e. To increase strategies (chunking, verbal rehearsal, etc) used for functional memory tasks for a phoneme series from 40% to 80% accuracy.
- f. To increase strategies used for functional memory tasks for story content from 40% to 80% accuracy of detail recall, with and without visual cues, using the reading strategy of visualization.
- g. To increase recall of complex grammatical sentences with subordinated clauses or conditional commands from 40% to 80% accuracy.
- h. To increase recall of complex grammatical sentences containing 3 attributes (e.g. a large black monster with blue eyes) from 40% to 80% accuracy.
- i. To increase auditory memory of a short story with 3–5 key components by telling details of “who, where, when” with 70% accuracy.
- j. To increase auditory memory of a short story with 3-5 key components by retelling the introduction, main idea and conclusion with 70% accuracy.
- k. To increase auditory memory of a short story with 3-5 key components by verbally giving 3-5 expected details from the story.

Problem Statement 3: Phonological awareness skills are substantially below expected developmental norms for typically developing school aged children.



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APD LTG 3(PHONOLOGICAL AWARENESS): To increase phonological awareness skills from a standard score = ____ to age appropriate skills.

APD STG (PHONOLOGICAL AWARENESS):

- a. To increase segmentation skills for syllables from 20% to 80% accuracy level.
- b. To increase segmentation skills for phonemes from 20% to 80% accuracy level.
- c. To increase isolation skills for initial, medial and final phonemes from the 50% to 90% level.
- d. To increase deletion skills from the 70% to 90% level for phonemes.
- e. To increase substitution skills of syllables with manipulatives from the 50% to 90% level.
- f. To increase substitution skills of phonemes with manipulatives from the 50% to 90% level.
- g. To increase grapheme knowledge of diphthongs from 25% to 75% upon sight presentations.

Problem Statement 4: Consistent and significant difficulty with temporal aspects of audition.

APD LTG 4 (AUDITION): To demonstrate improved auditory skills.

APD STG (AUDITION):

- a. To increase frequency discrimination by 500 Hz increments as indicated by labeling high vs. low pure tones.
- b. To increase identification of pitch patterns (3 pitch series) within 250 Hz of puretones to 80% accuracy in a trial of 10.
- c. To increase identification of pitch patterns of modulated pitch sweeps (i.e. Away We Go CD) to 80% accuracy in a trial of 10.
- d. To increase gap detection (silence between pure tone bursts or white noise) from 40% to 80% accuracy (i.e. keyboard App)

Problem Statement 5: Significant deficit in understanding prosody cues.

APD LTG 5 (PROSODY): To increase comprehension and interpretation of metalinguistic cues such as prosody and inflection in reading tasks and conversation.



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APD STG (PROSODY):

- a. To increase comprehension of prosody meaning for emphasized KEY words (through increased intensity **or** prolongation) in a reading task or conversation from 40% to 80% accuracy.
- b. To increase comprehension of inflectional cues (by raised or lower pitches) within a reading passage or conversation as they relate to questions, statements or sarcasm from 40% to 80% accuracy.
- c. To increase gap detection (silence between pure tone bursts) and it's metalinguistic meanings while reading aloud from 40% to 80% accuracy.
- d. To increase application of grammatical markers placed into a text passage devoid of any commas, question marks, or exclamation points, based on child's gap or pitch detection (pitch dropping followed by silence = comma or period placement, while pitch raised = questions mark placement) and it's metalinguistic meanings while hearing a passage being read: from 40% to 80% accuracy.
- e. To increase verbal application of pitch and silence corresponding to grammatical markers, while child reads a passage aloud.
- f. To increase verbal application of KEY words (through increased intensity of prolongation) corresponding to grammatical markers, while child reads a passage aloud.
- g. To increase identification & application of silence or pitch cues (i.e. gap or pitch detection) and it's metalinguistic meanings during conversation from 40% to 80% accuracy

Problem Statement 6: Receptive and/or expressive language deficits are substantially below expected and developmental norms for typically developing school-aged children.

APD LTG 6a (FIGURATIVE LANGUAGE): To increase comprehension and usage of figurative language.

APD STG (FIGURATIVE LANGUAGE):

- i. To increase comprehension of figurative language phrases ("Play it by ear") from 50% to 75% accuracy as evidenced by matching to a semantically similar meaning.
- ii. To increase expression of figurative language phrases by filling in the blank in sentences to 80% accuracy.
- iii. To increase expression using figurative language phrases in a short paragraph appropriately 80% of the time.



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APD LTG 6b (RECEPTIVE LANGUAGE): To increase receptive vocabulary and semantic closure skills.

APD STG (RECEPTIVE LANGUAGE):

- i. To increase identification of semantic categories of a series of 4-5 related words with 70% accuracy.
- ii. To identify the one "outlier" of a group of 4-5 related words with 70% accuracy.
- iii. To identify 2-3 synonyms for key vocabulary words within a text with 70% accuracy.
- iv. To identify a noun or verb when given "clues" from the Expanding Expression Tool (EET).
- v. To provide "clues" based on the EET criteria in order to allow listener to guess the vocabulary word described.
- vi. To demonstrate inferencing skills from text

Problem Statement 7: Consistent and significant difficulty with binaural integration and/or separation.

APD LTG 7 (BINAURAL INTEGRATION): To increase binaural integration skills.

APD STG (BINAURAL INTEGRATION):

- a. To increase ability to name objects out of sight by touch of the left hand with 70% accuracy.
- b. To increase ability to describe attributes of objects out of sight by touch of the left hand with 70% accuracy.
- c. To increase ability to describe drawings of limited complexity as they relate to a story heard auditorily using 2-3 details.