

# **Pilot Study**

## **The Listening Program®**

### **The Colony**

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#### **INTRODUCTION**

The Listening Program® Site Kit was implemented at ‘The Colony’, a ‘choice’ classroom offering a nontraditional learning environment in the Quincy School District. This classroom was established for students who have been less successful in a traditional learning environment. This small rural district in central Washington state has participated in previous studies on TLP. I provide part time/contractual speech language pathology services in grades 4 through 12. The district’s ethnicity is equally Caucasian and Hispanic with two elementary schools having a majority of Hispanic students. The community is primarily lower middle to middle class with an agricultural and food processing base. A good number of the Hispanic children come from families where Spanish is the primary language spoken at home.

The school program was started with four youngsters all taken from the same classroom. These four boys ranged from grades 5 to 7. They were chosen due to the auditory processing and learning deficits they demonstrated in the classroom and standardized test results. Three are on academic IEP’s. None of them have speech and language goals. Their classroom teacher monitored the program daily with SLP intervention weekly.

In addition to pre and post checklists and weekly teacher assessment of changes she observed, each child was given the standardized Test of Auditory Perceptual Skills–Revised (TAPS-R) or The test of Auditory Perceptual Skills–Upper Level (TAPS-UL) (depending on age) and the Screening Test in Auditory Processing Disorders for Adolescents and Adults (SCAN-A) prior to beginning and following completion of The Listening Program. Each child was on the Condensed listening schedule and went through the program for two cycles totalling 40 hours of listening. Sony D-EJ368CK CD players and Sony V600 headphones were used.

#### **STANDARDIZED TESTS ADMINISTERED**

The primary purpose of the Test of Auditory Perceptual Skills – Revised and Upper Level is to assess various areas of a person’s auditory perceptual skill. Both tests can also offer the examiner other information about the subject – such as their ability to understand various types of directions (key words and sequencing) accurate pronunciation of words (correct articulation of words), processing (using common sense in solving common thought problems), immediate recall of auditory information and discrimination of word sounds.

The TAPS-R and TAPS-UL subtests include:

- Auditory Number Memory – Forward (ANM-F), measures immediate recall of rote nonsensical sequential auditory information
- Auditory Number Memory – Reversed (ANM-R), measures ability to concentrate and to perform an activity requiring mental control
- Auditory Sentence Memory (ASM), measure ability to remember for immediate recall not only rote auditory information (but with some thought or notion of meaning), but also to recall this auditory information in sequence, this measures two processes
- Auditory Word Memory (AWM), measures the ability to recall a series of single words that are not meaningful
- Auditory Interpretation of Directions (AID), measures auditory memory and sequencing and focuses on a person's ability to comprehend and understand and interpret information well enough to verbally express that they understand and can follow directions
- Auditory Word Discrimination (AWD), measures whole-word discrimination ability – making sound judgments
- Auditory Processing (thinking and reasoning) (AP), measure a person's ability to use common sense and ingenuity as well as insightfulness in solving common thought problems

The purposes of the Screening Test in Auditory Processing Disorders For Adults and Adolescents (SCAN-A) include: to determine possible disorders of central nervous function by assessing auditory maturation, to identify individuals who may be at risk for auditory processing or receptive language problems that may require additional testing, and to identify individuals who may benefit from specific management strategies to improve auditory and language processing abilities.

The four SCAN-A subtests are:

- Filtered Words (FW), repeating monosyllabic words that sound muffled. The words have been low pass filtered at 750 Hz
- Auditory Figure Ground (AFG), understanding monosyllabic words in the presence of background noise. The signal to noise (S/N) ratio is +4 dB
- Competing Words (CW), repeating monosyllabic word pairs presented to the right and left ears that are both repeated
- Competing Sentences (CS), a directed listening task where sentence pairs are presented simultaneously

AD is a 13-year-old Hispanic boy. Spanish is his primary language and is spoken exclusively at home. He has an academic IEP. His classroom teacher completed the pre Listening Checklist and she identified him as: easily distracted, has difficulty focusing, poor attention span and short-term memory, difficulty recalling exact word usage, poor ability summarizing and relating facts, poor sense of rhythm, difficulty setting goals, feels overburdened with everyday tasks, does not complete assignments, misinterprets questions or requests and requires multiple repetitions to absorb content.

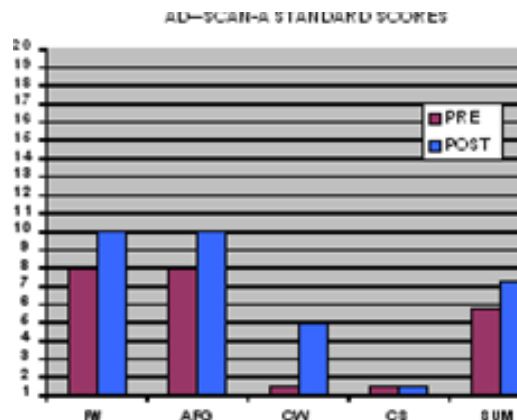
This graph represents the changes in raw score, stanines, standard scores, scaled scores, and percentiles for each subtest of the TAPS-UL. AD's greatest gains were made in auditory sentence memory, directions and auditory word discrimination.

**Test of Auditory Perceptual Skills - Upper Level TAPS-UL)**

CLIENT-AD	Pre	Post										
	11/19/03	5/25/04	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
	RAW		Stanine		SS		SCALED		%tile			
AWM-F	14	14	1	1	62	61	2	2	1	1		
AWM-R	6	10	3	3	84	88	7	8	14	21		
ASM	9	30	1	2	70	76	4	5	2	5		
AWM	6	6	2	2	78	77	6	5	7	6		
AID	4	9	2	3	78	83	6	7	7	13		
AWD	15	20	1	4	73	96	5	9	4	39		
AP	1	6	1	2	65	78	3	6	1	7		
SUM OF SS											34	42
AP QUOTIENT											67	74
%TILE RANK											1	4

This graph represents the changes in AD's SCAN-A scores. His greatest gain was made in the competing words with improvement in filtered words and figure ground. SUM scores are represented by tenths ( to fit the graph).

After completing his TLP listening, AD's teacher noticed improved: focus, attention, direction following, summarizing and relating facts, better goal setting and completing classroom assignments, reduced sound sensitivity and he feels less overburdened with everyday tasks.



During the first 2 weeks, AD's teacher indicated he is having a really hard time staying on task. She also noted incremental changes of: improved physical coordination, and sometimes more appropriate with adults, after 4 weeks. He continued to show improved coordination and appropriate adult behavior as well as improved attention span after 6 weeks. She also reports he is able to listen to an entire session without a break.

After 8 weeks AD had begun asking to do the TLP. He was also demonstrating a quicker response time, he's less distractible, and making more eye contact. Finally, his teacher reported less wiggling, he was using a stronger voice, had an improved mood and was more motivated after just 10 weeks.

His teacher also noted a significant gain in his STAR (Standardized Test and Reporting Program, used throughout the district to measure math, reading and spelling progress) test scores for reading. He was at a 2.1 grade level for reading pre TLP and improved to a 3.2 grade level following his listening. This is a 1.1 grade level gain with just 16 weeks of the TLP.

#### **TLP PROGRAM RESULTS-PC**

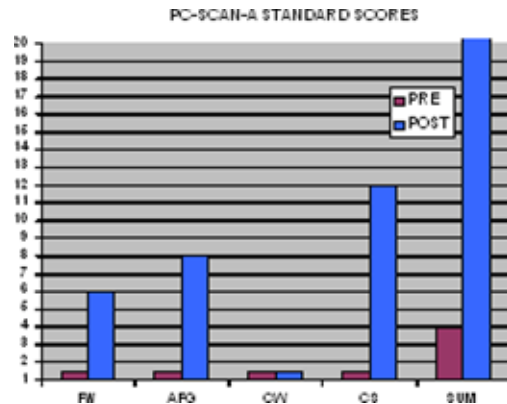
PC is a 13-year-old Hispanic boy. He does not have an academic IEP. His classroom teacher completed the pre Listening Checklist prior to initiating the TLP and identified difficulties: focusing, short attention span, easily distracted, over sensitive to sounds, misinterprets questions and requests, difficulty with sound discrimination, confuses similar sounds, must re-read material several times, misinterprets directions, difficulty reading aloud, summarizing a story, a poor sense of rhythm, clumsiness, difficulty making friends, setting goals, lacks tactfulness, does not tolerate stress, often complains of headaches, has a poor self image, low motivation, has difficulty making judgments and generalizing to new situations.

This graph represents the changes in raw score, age equivalency, standard scores, scaled scores, and percentiles for each subtest of the TAPS-UL. PC's greatest gains were made in auditory sentence memory, auditory interpretation of directions and auditory processing (thinking and reasoning).

**Test of Auditory Perceptual Skills - Upper Level (TAPS-UL)**

CLIENT PC	PreTest	Post										
	11/12/03	5/19/04	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
	RAW		Stanine		SS		SCALED		%tile			
AWM-F	14	14	1	1	62	62	2	2	1	1		
AWM-R	10	10	4	3	91	90	8	8	27	25		
ASM	19	41	2	3	76	82	5	6	5	12		
AWM	6	14	2	3	80	88	6	8	9	21		
AID	4	14	2	4	79	91	6	8	8	27		
AP	3	4	1	2	73	74	5	5	4	4		
<b>SUM OFF SS</b>											38	48
<b>%TILE RANK</b>											1	4

This graph represents the changes in PC's SCAN-A scores. He made gains in Filtered Speech, Figure Ground and Competing Sentences.



After completing his TLP listening, his teacher noticed improvement with focusing and attention, reduced sound sensitivity, better short-term memory, sound discrimination, needs less repetitions, better vocal quality, better absorption of material read, improved speech fluency, reading aloud, improved spelling, better summarizing and organizational skills, as well as improvement in behavioral and social skills i.e. setting goals, maturity and tolerating stress.

PC's teacher also noted incremental changes in energy level, being more patient, motivated and responsible after 2 weeks. Less wiggling, more flexible, was beginning to think more before acting and he's less irritable after 4 weeks. After week 6 she noted continued improvement in motivation, energy and flexibility and he has become better at beginning and completing projects.

He was making better eye contact, improved organization and focus and an improvement in vocabulary after week 10. And finally, continued improvement in eye contact, energy, organization and focus and she states his reasoning skills are better after just 12 weeks.

PC also improved his performance for reading on the STAR tests. He improved from a 2.5 grade level pre TLP to a 4.1 grade level following 16 weeks of listening. He's never shown that much gain between tests before.

**TLP PROGRAM RESULTS-UA**

UA is an 12.5 year-old Hispanic boy. Spanish is his first language and spoken primarily at home. He is currently on an academic IEP. His classroom teacher completed the pre Listening Checklist prior to his beginning The Listening Program. She reports difficulty focusing, poor attention span, distractibility, tires easily, difficulty recalling exact word usage, understanding directions or requests, poor sound discrimination, poor short-term memory, he often thinks some people talk too fast, has difficulty summarizing a story, relating isolated facts, left/right confusion, clumsiness, poor ability making good judgments and temporal concepts as well as low frustration tolerance and feels over burdened with everyday tasks.

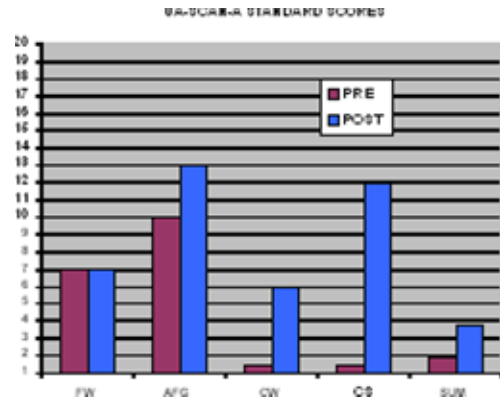
This graph represents the changes in raw score, age equivalency, standard scores, scaled scores, and percentiles for each subtest of the TAPS-R. UA's greatest gains were made in auditory number and word memory, auditory interpretation of directions, auditory discrimination and auditory processing (thinking and reasoning).

**Test of Auditory Perceptual Skills - Revised (TAPS-R)**

CLIENT-UA	PreTest	Post											
	11/12/03	5/25/04	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	
	RAW		A.E.		SS		SCALED		%tile				
AWM-F	23	28	5.10	7.1	75	79	5	6	6	8			
AWM-R	14	14	9.2	9.2	91	90	8	8	8	25			
ASM	42	42	7.1	7.1	80	78	6	6	6	7			
AWM	14	18	5.1	7.1	78	83	6	7	7	13			
AID	14	28	7.1	11.10	82	98	6	10	10	45			
AWD	34	36	8.10	>12.11	100	113	10	13	13	81			
AP	26	30	10.7	>12.11	94	105	9	11	11	63			
SUM OF SS											50	61	
AP QUOTIENT											76	89	
%TILE RANK											9	24	
MEDIAN AGE											7.1	9.2	

This graph represents the changes in UA's SCAN-A scores. He made gains in Auditory Figure Ground, Competing Words and Competing Sentences. SUM scores are represented by tenths (to fit the graph).

After completing his TLP listening, his teacher noted many improvements. He is better with left/right orientation and locations, focusing, attention, less distractible, better long-term memory, energy level, word recall, summarizing, relating isolated facts, better with stress, posture, coordination, oral reading and is less overburdened with everyday tasks.



His teacher noted incremental changes throughout his listening. By week 2 he was verbalizing that he didn't like the program was taking his headphones off and on, being generally uncooperative. His teacher was going to make it a point to discuss this with his mother.

He continued to be uncooperative through week 4. However, his teacher stated he was 'a little' more motivated. By week 6 he was still 'playing' around and 'pretending' to be listening. His teacher worked very hard at monitoring UA and making sure he was listening. By week 8 UA was more receptive to the program, he complained less of headaches and demonstrated improved mood. His parents reported an improved attention span.

By week 10 UA was more physically active, speaking more clearly, less overwhelmed, had an increased sense of humor, was more motivated, less distractible and had improved social interactions. By week 12, his teacher reported he was more alert during class and seemed less overwhelmed.

UA also demonstrated some improvement with his STAR test scores. His reading grade level improved from a 3.8 grade level prior to TLP to a 4.5 grade level post TLP.

### **TLP PROGRAM RESULTS-AM**

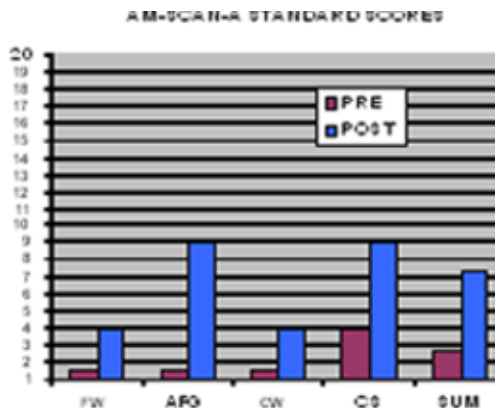
Finally, student four was AM a non-Hispanic 13-year-old boy. English is his first language and is primarily spoken at home. He is also on an academic IEP. His classroom teacher completed the pre Listening Checklist prior to his beginning the TLP. She reported AM has difficulties focusing, distractibility, sound and word discrimination, tires easily, poor spelling and stumbles over words, difficulty understanding discussion, clumsiness, withdraws or avoids social interactions, difficulty setting goals and making judgments, lacks tactfulness, acts immaturity, and has difficulty completing and starting projects.

This graph represents the changes in raw score, age equivalency, standard scores, scaled scores, and percentiles for each subtest of the TAPS-UL. AM's greatest gains were made in auditory sentence memory, auditory word memory, auditory interpretation of directions, and auditory word discrimination.

**Test of Auditory Perceptual Skills - Upper Level (TAPS-UL)**

CLIENT-AM	Pre	Post										
	11/5/03	5/4/04	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
	RAW		Stanine		SS		SCALED		%tile			
AWM-F	30	47	3	6	84	86	7	11	14	68		
AWM-R	14	14	5	5	97	85	9	9	42	42		
ASM	42	54	3	4	84	90	7	8	14	23		
AWM	24	35	5	7	103	84	11	13	58	87		
AID	14	24	4	6	68	92	9	11	32	66		
AWD	21	24	5	7	102	106	10	13	55	86		
AP	5	10	2	4	79	69	6	9	8	34		
SUM OF SS											59	74
AP QUOTIENT											90	104

This graph represents the changes in AM's SCAN-A scores. He made gains in Filtered Speech, Auditory Figure Ground, Competing Words and Competing Sentences. SUM scores are represented by tenths (to fit the graph).



After completing his listening of the TLP, AM's teacher reported he had a better attention span, improved sound sensitivity, improved understanding of discussions, better at spelling, exact word usage, setting goals, completing tasks, punctuality and taking more responsibility.

His teacher also noted incremental changes throughout the listening assignment. By week 2, AM was more communicative, thoughtful, flexible, motivated, less distractible with a quicker response time. By the end of week 4 she reports "a remarkable change in eye contact", he's more physically active, more thoughtful, more affectionate, increased energy, and more patient.



By week 6, he seems less overwhelmed, more communicative, change in eating habits, more calm and relaxed, thinking before acting as well as completing and beginning more projects more consistently. She mentions that he “enjoys the program”, has improved social interaction and focus by week 8. He is demonstrating more eye contact, animated, less defensive, and more patient by week 10.

AM also demonstrated good improvement with his STAR test scores. His reading grade level improved from a 5.4 grade level prior to TLP to a 6.8 grade level post TLP.

### **SUMMARY**

The Listening Program was completed in this rural school district with four 12 to 13 year old boys in from grades 5 to 7 in a nontraditional teaching classroom. Each child made significant gains in auditory processing using the TLP. Standardized test scores and professional observations confirmed the gains.

Progress was demonstrated by all the students in auditory memory and discrimination. This improvement was obvious in the classroom by the changes noted in behavior and social adjustment, confidence, levels of energy, receptive and expressive language and personal intensity. The results also transfer to other assessment tools specifically the STAR test.

I would especially like to recognize and thank ‘The Colony’s’ classroom teacher, Kathie Brown. She is clearly dedicated to the success of her students and she has a truckload of patience. She was essential to the monitoring and tracking of each student’s behavior, performance and eventual success.