

SSW Reports

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Where Does the Fault Lie?

Jack Katz

Every few weeks I see a child who has fallen through the cracks, and was left behind. The parents did what they knew to do. Presumably, the professional community did what they knew to do (although we do not know if any knew what to do for auditory processing, but the bottom line is they did not do it). I do know that some schools/school systems tell their staff that they are not to mention APD for fear that the cost of the services will be the school district's responsibility. What do you think about the ethics of such an approach?

Joseph

A delightful, polite and very smart, athletic 17-year-old young man was seen this month for an APD evaluation. Because of his developmental issues he was identified and given an IEP by 18 months of age. Between then and now he has had speech therapy for 15 years! At 3 years of age he was seen by an audiologist for a hearing evaluation and found to have normal hearing. The audiologist indicated the likelihood of APD. Because speech-language progress was slow he was reevaluated for hearing at age 5 and when found to be normal he was given the SCAN. This helped to confirm the AP deficit. Progress was still slow at 7-years-of-age and so he was retested by the audiologist and again found to have APD.

Joseph had immediate problems in school including reading word accuracy, reading comprehension and math, but not in spelling

as he was an excellent visual learner. To help him at school, in addition to speech-language therapy, he has been receiving remedial reading services (including intensive phonics) for the past 5 years as well as services for learning disabilities (LD) for 1 to 1½ hours a day.

The only service directed toward APD was enrollment in a research study of *Fast ForWord*, at a local university, in the hopes that would resolve his problem when he was 8-years-old. In desperation the pediatrician put Joseph on Ritalin even though he did not have ADD or ADHD, but rather in the hope that it would help him with his APD. Joseph took the medication for 9 years, but not surprisingly it did not help him (see Tillery et al., 2000, J Sp Hear Lang Research).

Joseph has a strong desire to go to college, but his grades are so poor that he can only get into a junior college because they have no grade requirements. The parents requested the APD evaluation to document Joseph's APD and establish a set of accommodations that would help him succeed in college (they were unaware of APD therapy).

The Buffalo Model Questionnaire (BMQ)

On the BMQ the parents indicated 7 out of 8 (7/8) Decoding (DEC) concerns (plus 2/4 more from the case history form), 4/14 TFM (plus 4/4), 2/6 INT (i.e., Extreme Handwriting and possible Auditory-Visual Integration), 2/3 ORG (plus 1/1) and 3/5 APD in general (plus 1/1). Thus, the behaviors reported by the family suggested all 4 types of APD.

Audiometric Evaluation

Basic testing showed normal thresholds for puretones, word recognition in each ear and

normal tympanometry and acoustic reflexes. The significant central test results are shown in the table below.

Joseph’s Significant Findings on the Central Test Battery

Test	Measure	APD Category
Staggered Spondaic Word (SSW)	Total (NOE) Score (14, NL=6)	Various
	Right Competing (6, NL=2)	DEC
	Left Competing (6, NL=4)	TFM
	Left Non Competing (2, NL=1)	DEC
	Delays (12, NL=0)	DEC
	Perseveration (4, NL=0)	DEC
	Ear Effect HL (2, NL=6)	TFM
	Order Effect LH (-2, NL=-1)	TFM
	Reversals (2, NL=1)	ORG
Phonemic Synthesis (PS)	Quantitative Score (22, NL=25)	DEC
	Qualitative Score (16, NL=22)	DEC
	Delayed Response (3, NL=1)	DEC
	O for L (1, NL=0)	DEC
	Quick Response (3, NL=1)	TFM
Speech-in-Noise (SN) W-22 words	Right Ear Noise (72, NL=82)	TFM
	Right Ear Difference (68, NL=81)	TFM

DEC = Decoding, **TFM** = Tolerance-Fading Memory, **INT** = Integration, **ORG** = Organization
 ** Smaller scores are better for all indicators except SSW: Order Effect; PS: Quant/Qual Scores; SN: R/L

A new test, DOM, that I am working on to provide additional INT signs and more sensitive reversals, was also administered. Joseph had 8 reversals on DOM supporting the milder sign on the SSW. The parent information differed slightly from the APD test results in that the BMQ additionally showed a sign of INT difficulty, whereas the SSW test did not. The jury is still out on that question. Fortunately in this case we have follow up information. See updated results below.

The 15 signs of APD on the Buffalo Battery and at least 3 categories of dysfunction; surely demonstrate a major APD after 1000s of hours of therapy/assistance over the years. With such a bright, hardworking youngster how could he still have such a significant processing disability?

What Went Wrong and Who’s to Blame?

It seems to me that everyone did the best they knew how including the parents, audiologist, pediatrician, school and Joseph himself. We could say that someone should have known that you can treat APD, but if someone is responsible I suppose it is me.

I have often pointed out that “You don’t know what you don’t know until you know it.” It is for this reason that those who know how treatable APD is need to spread the word to those who don’t. This does not absolve those school administrators, at some schools, who forbid their staffs from telling parents that there might be an APD because the school might have to foot the bill. But if the personnel believe that APD is/may be the problem and the parents trust the school to be honest and that they want to help educate the children, then how could such school behavior be condoned.

Postscript

Joseph's parents have decided to have him come to APS for auditory training. I am predicting that it will not take more than 10 sessions (roughly 8 hours of therapy) to bring his performance to normal or near normal levels. It looks good but a bit late.

Joseph's Therapy and Retest Results

Jack Katz

The above portion was written several months ago, but was not printed in SSW Reports because of the 30th anniversary issue. That was fortuitous because we now have Joseph's therapy and retest results.

First, as for my prediction of 10 therapy sessions, for a while I thought that it would take perhaps 11 sessions but we only needed 10! Yes, but how did he do?

Therapy Program

Joseph had 10, 10-15 minute sessions on the Phonemic Training Program (PTP) in which he pointed to cards with alphabet letters. He generally did well but on a handful of sounds he had significant confusions that took longer than usual to remediate. We use a Focus procedure that pits one of the confusions against the other. This usually takes 2 or 3 sessions to remediate, but i/j took 4 sessions and w/u took 5. The /w/ was a particularly difficult sound for him.

Joseph had 11, 10-minute sessions of speech in noise training using a words-in-noise (WINT) procedure. In this task speech is presented without background noise and then noise is added incrementally. He started off with a total of 23 errors on the first two visits and had only 6 errors on the last two visits. A further indication of his improvement was that he reduced his delays as well. As you know we count delays only when an item is correct, so he reduced the delays even though there were more words that could be delayed for the last two visits.

On the 10, 15-minute Phonemic Synthesis (PS) lessons; Joseph went through them without major problems. In PS; words are presented sound-by-sound and the person has to say the word. Each lesson helps with the next as they get harder. Joseph reached the completion level on the first try for each of the lessons (despite his issues on pretest).

We only had time for 7 sessions (5-10 minutes) of Memory for Words in which Joseph was given 4 or 5 words per item that he was to repeat. He had significant difficulty with one sublist with 4 words per item (67%) but with a little training got them all correct. For most sublists with 5 words he had further difficulty initially (22 to 50% correct), but after some work raised his scores to 83 and 88%.

I believe that Joseph's previous therapies, his hard work and intelligence gave him the basis for his rapid improvement in the auditory training.

Retest Results

Another way to analyze improvement is to study Joseph's retest scores.

Joseph's Pre/Post and Difference Scores

Norm	Test	PreSc	PostSc	Diff
	SSW			
6	Total	14	12*	2
2	RC	6	3*	3
4	LC	6	6*	0
1	LNC	2	3*	-1
0	X	12	5*	7
1	EE	6	4*	2
-1	OE	-2	-2*	0
0	P	4	0	4
1	Rev	2	0	2
	PS			
23	Quant	22	25	3
22	Qual	16	25	9
1	X	3	0	3
1	Q	3	0	3
0	O/L	1	0	1
	SN			
82	RE	72	88	16
81	LE	68	84	16

* indicates still significant on retest

Of the 16 factors that were outside normal limits initially 13 of them improved and 9 of them were within normal limits on post testing. The two tests (PS and SN) that related most directly to the therapy were completely within normal limits (NL) on the post test. The scores that remained outside of NL were all on the SSW which, though improved, were not in normal range for an adult. The number of factors that remained outside of NL is more than we usually see following therapy, but I suspect that this is related to the initial Integration concern noted above (see Interpretation).

Buffalo Model Questionnaire (BMQ)

The third way that we analyze improvement is to see if the parents/teachers see changes in the initial concerns on the BMQ. At the reevaluation we ask the parents also to indicate if they see an improvement in self confidence. Joseph’s parents noted a moderate improvement.

Initially almost half of the 38 APD questions were of concern to Joseph’s family/school. The DEC questions were: Understands Oral Directions, Phonics, and Oral Reading; each of which was rated as moderately improved. This was impressive for an 18 year old who had so much reading and speech therapy! The TFM questions were: Reading Comprehension, Hypersensitive to Noise, and Recent Memory each of which was considered moderately improved by the parents. Other DEC BMQ questions such as Speech Articulation and Understanding Language were not considered for the re-assessment as they were not directly associated with the therapy.

Interpretation

I was surprised that Joseph did not perform better on the SSW test. While he showed good or better improvement in delays (X) and perseverations (P), he did not improve much or at all in other aspects such the LC condition and Ear and Order Effects. These three scores can relate to the Type A pattern

(the main indicator of Integration on the SSW) and Ear and Order Effects that are artificially connected to the Type A. It makes me think that Joseph could have an undetected INT problem (perhaps masked by his previous therapies) and/or a dichotic listening problem.

The purpose of DOM, that is studied for its contribution to the test battery, is specifically a dichotic listening measure with items differing in binaural overlap time. The mild competition (200 and 400 ms separation from center) are considered the Easy dichotic items and those 0 to 50 ms off center are considered the hard dichotic. The table below shows the pre and post therapy DOM results.

	Easy Dichotic	Hard Dichotic
Pre Test	5	15
Post Test	1	11
Improvement	80%	27%

On DOM the greatest improvement was on the *Easy* dichotic items but the small amount of change on the *Hard* dichotic suggests that this is an issue that we were not aware of initially. Although we do not have strong evidence of an Integration problem there seems to be a dichotic listening problem.

Although we did complete the therapy on the DEC, Speech-in-Noise and some of the Memory issues in 10 sessions, the retest suggests that there are other areas of concern. For this reason it was recommended to Joseph and his parents that if he continues to do well in school that there may not be need for further therapy. But if he or they believe he has more to gain they should contact me to see if further therapy would be indicated.

With such good skills Joseph might continue to improve in DEC on his own, but if not there is still some room for improvement. It would be well to work on Working Memory, even though the parents were given mater-

ials to improve Working Memory, often home therapy does not materialize or is not as effective as when provided by experienced clinicians. The third area that seems to need work is dichotic listening (we use Dichotic Offset Training - DOT).

Summary and Conclusions

I must admit that I was fortunate that Joseph completed the program in exactly 10 sessions. Usually, I don't try to predict how many sessions it will take but because of Joseph's many years of struggle and all the therapy that he was given, it bothered me that it would take so little to make a major dent in his APD.

Joseph performed very well, as predicted, but I still wonder if his lack of progress in school over the years may be due to an INT problem that often resists interventions. Because of his fine work in the auditory training program, I am reasonably confident that Joseph will continue to do well here should he return for further therapy.

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<p style="text-align: center;">Why Delay? Jack Katz</p>
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“He who hesitates is lost” we are told. But for those with Decoding (DEC) problems a delay is often the reason they succeed. Ideally, people decode quickly and accurately, but when we have DEC problems we often have a choice of being slow, but accurate or quick and inaccurate. In life being right is generally better than just being slow.

For those of us with DEC problems we are fortunate that with just a short stint of therapy we can improve our accuracy and speed (as Joseph did). We have discussed the effectiveness of therapy, in the past, and will do so again in the future. [Please note the book: *Therapy for Auditory Processing Disorders* will be coming out by this

summer (I hope) from Educational Audiology Association.]

Audiologists are not in the habit of studying the quality of test/therapy responses, but once they do they see the great value in doing so with no additional testing time. As you know, response delays (at the beginning of items or between words on the SSW test) are associated with DEC problems. We only count delays (i.e., (X)) if the item is correct. The likelihood that a delay, at the beginning of an item or between words in the item that were eventually correct, was due to extra time that was needed to compensate for a DEC problem.

If our tests were timed many people who have puzzled out their answers might be identified. When they pause and get the answer right it is likely not because they properly decoded it, but because they used their other cognitive skills to figure them out. Instead of using cumbersome timed tests that likely will cause our clients much frustration, we can get the information that we need by scoring delays. That is like having your cake and eating it too!

The nicest complement that I got earlier this week was from a parent of a child that I had just evaluated. The mother indicated that the testing would go more smoothly without her in the room, but I much preferred that she stay because she would get insights monitoring the items and her child's responses. Sure enough when I went over the results with her she was so pleased to have been present because she could see her son's errors and had questions about them.

I asked the mom if she noticed his delays and she surely did. I explained that Delays are associated with an APD Decoding problem, not being able to process quickly and accurately etc. and asked if this was common at home. She said it was. Then we talked about Perseverations and this was seen at home as well. As we went through

the various characteristics she was incredulous and said, "I had no idea that these tests could provide so much information!"

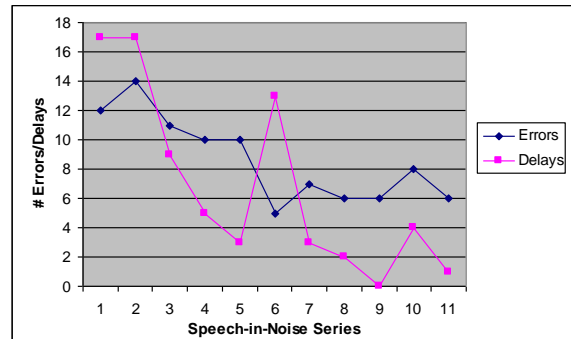
Parents cannot know if you did a good job of demonstrating Decoding, Tolerance-Fading Memory etc. categories, but they surely know when you can tell them what they have already seen. Delays are the easiest ones for parents to identify with.

Delays can save the day. When a person trades time for Decoding errors they may look good on paper – often able to beat the test norms, but then you see lots of delays so you can explain why they did so well. The same is true when they have had speech therapy or reading therapy and beat the Phonemic Synthesis Quantitative norm. The most likely telltale sign is that they had quite a few delays on correct items. In such cases the Qualitative score (based on X, XX, Q or QR) will show not only a positive result but also the extent of the problem. The 8-year-old youngster that I saw this week had 3 years of reading therapy and 2 years of speech. On the Quantitative PS score he beat the test with a score of 18 (NL=17), but his Qualitative score was 4 (NL=15). He had 8 Xs, 2 XXs, 2 Qs and 4 QR that accounted for the loss of 14 points (some items had more than one of these Qualifiers – but of course we only take off one point).

Nowadays so many of the children we see have had so much prior therapy that the norms based on naïve subjects are greatly weakened because these children have been exposed to these stimuli but likely APD has not been fully remediated. I believe if you don't consider Qualifiers you will miss important information about the patients that you see for APD testing. Chief among them is to look for Delays.

Qualitative indicators, especially Delays are important for therapy as well. [FYI: I mention when I saw these cases to let you know that these are everyday events, I do not have to dig into the file to find them.]

Today I retested a youngster after therapy. Here is a graph of her improvement in the WINT speech-in-noise task. Note the errors from session one to the end and the Delays in the therapy period as well.



The figure shows this 8-year-old child reducing her speech-in-noise errors on the WINT procedure from about 13 errors initially to about 6.5 over the 11 sessions (series). It is interesting to see a more dramatic curve for delays. We are interested in both speed and accuracy. The speed measure adds sensitive information. The improved speed for series 2-to-4 foretold the improvement in subsequent error scores. Series 6 is quite interesting in that she improved her error score, but the delays went way up. The child was clearly tired and reported that she did not sleep well the night before (they come from another state and stay over for the therapy). Despite being tired and taking extra time she was able to improve her score. It looks like the delays paid off when they were needed. The little blip for series 10 is when she had a cold.

Summary and Conclusions

I hope you can see the value of marking Delays (and other Qualifiers). They are free-of-charge and make you a better diagnostician and therapist. Perhaps those who give just one or two of the Buffalo Battery tests will see the great value in giving all three tests. By chance every test will fail but when you have three different types of tests and 35 potential indicators the pattern of the problem will likely show through. * * * * *