SSW REPORTS ...

Our Varied Populations
Solving the Extreme Delay
Speech-in-Noise Testing and Therapy

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Our Varied Populations
Deborah Welling and Susan Brandner

For many years, both authors have worked together and/or with similar populations. One of these populations is the Inner City, notably Newark, NJ and the other, the suburban town of Freehold, NJ. (It is this Freehold population that has been the basis for several articles on the INT category.) We bring the same testing style to each of these testing sites and find that our results, when testing the same population, are similar. We therefore have chosen to look at the very different results that we have found when we compare the members of each population.

Normal findings on the SSW and PS in a 7-year-old. – but not S-in-N
Deborah Welling

"Nicky" is a youngster who probably could have been one of those children that the tests were normed on. He is a 7-year-4-month old boy who was brought to our office because his mother wanted to rule out the possibility of an auditory processing disorder. She was concerned because she believes that the child's primary problem is one of confidence rather than the first-grade teacher's reports of focusing difficulty. He was evaluated by the Child Study Team and no significant difficulty was found. Math is Nicky's weak subject and his strong subjects are reading, social studies and science. His parents enrolled him in a Sylvan Leaning Center for additional help in math.

Nicky's audiogram was unremarkable. His hearing sensitivity, impedance results, speech reception thresholds and speech discrimination in quiet were all within normal limits.

The SSW test revealed the following results:

	RNC	RC	LC	LNC	Total
Nicky	1	5	7	2	15
Norm	2	7	12	2	22

As you can see from the above numbers, Nicky scored well within the normal range for children age 7. His condition and total scores are all well within the normal limits.

On the Phonemic Synthesis test, "Nicky" not only scored well within the normal limits, but exceeded expectations. The expected Quantitative and Qualitative scores for a 7-year-old are 17 and 15 respectively. Nicky scored 23 and 20! Clearly, these scores are superior to what is expected of a 7-year-old.

The one exception to this stellar performance was the Speech-in-Noise result; he scored 52% with each ear. When compared with his performance in quiet, there was a 44 point difference with the right ear, a 40 point difference with the left ear – the normal limits are 22 points for the right ear, 23 for the left. One cannot make a diagnosis based upon one test; it is unusual for a child to score so poorly on S-in-N and so extremely well on the SSW. Does his performance on the S-in-N test represent the behavior that the teacher was describing? Is there something about the non-linguistic noise that makes it more difficult for him to understand speech? He's only 7-years old; perhaps a retest, in a year or two, will unravel the mystery.

Inner City Results -- What Does It All Mean?

Susan M. Brandner

In recent months I have been testing children in Newark, NJ, a large inner city. The referrals have been two-fold, first and most frequently from the section of Newark known as the 'Ironbound' section, that is largely Portuguese and Spanish, where English is often the family's second language – if you drive in this neighborhood you feel as if you are in another country. If you are lucky enough to find parking, you can get some of the best Spanish and Portuguese food.

The second group of children who are referred come from other parts of Newark, the areas that hit the national news; Newark is a city with one of the highest crime rate in the country. They are those children who suffer the many problems that plague inner city youngsters – children whose mothers were/are very young and who may not have had decent pre-natal care, children who live in extreme poverty whose only hot meal may be their free school lunch, children whose parents may be substance abusers, children in foster care, children whose parents may be illiterate – the list continues, you get the picture.

Many years ago Jack Katz studied the processing of youth incarcerated for violent crimes and found that "As a group, they had slightly depressed pure-tone thresholds with excellent word recognition scores." He also found that poor decoding was relatively common in this group. (1)

If auditory processing problems could be identified and worked with when a child was very young, could it make a significant difference in the quality of their learning and their lives in general? If this is a problem, why are most of the children coming from the small 'Ironbound' section of Newark?

The test results from both of these groups of children have been many standard deviations below the mean. What does it all mean? If it is legally possible in the school district to establish local norms, should I do that or is that selling these children short; or is that the only way to judge these children adequately in order to compare them with their peers? I'm 'a child of the '60s' – my years of experience say try to go for local norms; my heart says that if we don't aim for the national norms, we are underselling the future of these children.

I ask myself other questions – why are these children different from the other children in their class? Why are they referred for testing when other children from similar backgrounds are not? With these questions in mind I will review the results of 2 children, one for whom English is the second language at home and the other, a child who represents most of the children of Newark.

"Diego" is an 8-year-old boy who has a history of delayed speech and language. Although his mother reports that he does not speak Spanish, as a pre-schooler he received speech/language therapy services from a bi-lingual speech/language pathologist (coincidentally at a facility where both D. Welling and S. Brandner have worked). He had a Neuro-developmental evaluation by a pediatrician who reported: "Suspected auditory processing problems, receptive and expressive delays. Fine motor weakness. Social interaction may be affected by language deficits. This needs formal assessment." 'Diego' is currently being re-evaluated by the Child Study Team; he receives speech/language services and occupational therapy services at school.

"Diego's" peripheral hearing was essentially okay, his speech discrimination was 88% for the right ear, 92% for the left ear. He did have Type – C tympanograms bilaterally but since there was good compliance, CAP testing was done. Speech in Noise testing revealed noise scores of 64% for the right ear, 60% for the left ear with a difference of 24% for the right ear, 32% for the left ear.

On the SSW, his condition scores were outside the range of normal in all 4 conditions:

	RNC	RC	LC	LNC	TOTAL
Diego	4	17	26	4	51
Norms	2	7	12	2	22

The results suggest an **INT – Type 3** problem. Certainly the difficulty that he had with Speech-in-Noise supports the **TFM** component of this category.

On Phonemic Synthesis, "Diego" scored 12 out of 25 items correct; 8-year-olds are expected to get 17 items correct. Although some qualifiers were noted, these responses did not enable "Diego" to obtain a higher score. This supports the **DEC** portion of the **INT – Type 3** diagnosis.

The associated problems were reported to the Child Study Team. It is hoped that these results will assist both the speech/language specialist and the occupational therapist to maximize their treatment.

"Tommy" is a 7-year-3-month old boy who has been enrolled in a Special Education program. His father and grandmother feel that he does not belong in this program and should be mainstreamed; his mother has little to do with his care.

"Tommy" has a significant history of otitis and he had delayed speech development. He recently had an out-of-district speech and language re-evaluation. The speech/ language pathologist reported difficulties with expressive vocabulary, that his "vocabulary word bank is not appropriate for his age and functional level." She recommended that "attending skills and ability to focus on talk should be a major focal point of speech and language therapy." "Tommy" also receives occupational therapy in school once a week.

His audiometric testing was unremarkable, but his discrimination score for his right ear in quiet was poorer (84%) than one would expect. He is left handed; could he be processing language on the right side of his brain and could this be a reason for the lower score?

It was difficult for "Tommy" to discriminate speech-in-noise with a 20% right ear difference and a 32% left ear difference; and with a significant interaural difference – he likely has a diminished binaural advantage.

On the SSW, his scores at the 1 SD norm were out in all four conditions. Because I am seeing such difficulties with the children that I have been testing in Newark, it seems logical to score their tests at a 2 SD level. Even at this level, his scores exceeded expectations in both right ear conditions and the Total score.

	RNC	RC	LC	LNC	TOTAL
Tommy	4	15	14	4	37
1 SD	2	7	12	2	23
2 SD	3	9	16	4	28

He also had a significant number of reversals. Therefore, the SSW indicated **Decoding** and **Organization** difficulties with soft signs of **Tolerance/Fading Memory.** Because Tommy is left handed, the question continues – where does he process language -- are these problems **Decoding** or **Tolerance/Fading Memory**?

Dr. David Luterman, when testing a child that appears to be deaf, works with the parents until they can make the diagnosis. This phenomenon occurred during the Phonemic Synthesis test. "Tommy" was instructed live voice, he appeared to understand what was expected and was able to get some live voice practice items correct. When the recorded material was presented, he got the first item wrong but the second item correct. He got the first item of the actual test correct and then could not do the test. His father asked if he could instruct "Tommy" because he wasn't sure if "Tommy" really understood the task. I allowed this, "Tommy" got the first 4 items correct and then could do no more – 7-year-olds are expected to get 17 of the items correct. It was obvious to his father that he was having real difficulty with this task. The father was assured that this is a skill that the speech/language therapist could work on.

The children that I've tested in Newark are for the most part, already receiving speech/ language services. Hopefully the results of the testing will help to shape the therapy program. Fortunately, the school system does have the *Earobics* program although I believe that with the severity of the problems that are being uncovered they need a simpler program like *Phonemic Synthesis*.

I often wonder, if these are the children that have been identified, children with such severe problems, what would happen if we could test every 2nd grader in Newark? Would we find a very high percentage of children with CAPD? I believe that we would – if intervention occurred on a global level, auditory training in conjunction with reading, would more children in Newark learn to read on grade level? Would the crime level in Newark decrease? Remember, I'm a child of the 60s.

Reference

Katz, J., Fanning, J., Singer, S. & Harrison, S. (1989). Central Auditory Processing Functions in Incarcerated Youth (unpublished study).

Solving the Extreme Delay Problem

Jack Katz

The SSW has been evolving for over 40 years. When problems have presented themselves, we were often able to solve them and in the process make the test better. Hopefully this will happen again.

This article has to do with the CAP Integration sign, the Type-A pattern, and another sign that was thought to represent INT, the extreme delay (XX). The whole idea of the Buffalo Battery is that there is a back-up for each of the categories, so we do not have to depend on a single indicator. Thus it was nice to know that the Extreme Delay could be used to support the diagnosis of INT. However, Katz & Marasciulo[1] (2-2001 SSW Reports) has confused the issue.

Eight audiologists[2] kindly sent about 10 consecutive cases seen for CAPD ages 6 and above. Each subject was given the CTB-CD in the standard manner for SSW, PS and SN.

The most surprising finding was that the extreme delay was found often in those who did not have Type-A patterns. It was not reported how often it was found in those with Type-A. Because it is a rather rare indicator, we must assume that it was rare even in the 18 Type-A cases.

This finding was disconcerting because it was often found without other indications of INT problems. Two hypotheses were put forth to account for this finding: 1) The XX might not be a proper indicator for INT as it is often found in others, or 2) those scoring the test may not have followed the criteria for an extreme delay. Actually, I have considered the latter hypothesis as the more likely one. The reason is that I sometimes note a delay and then the time increases and I make a second X. However, there are <u>three criteria</u> that must be met:

- **A very long delay (e.g., 20 sec)**
- **No effort shown (and response given matter-of-factly)**
- **Item must be correct (or just one error in LC condition usually)**

I believe that it is too easy to think of an extreme delay as simply a very long delay - that's only 1/3 of the criteria -- but I believe that many people (including me) get sucked into making this scoring error.

Recommended Solution

In order to correct this apparent problem, I would like to recommend the following solution.

It is likely that as long as the sign is called *Extreme Delay* that we will continue to use it to designate when there is a very long delay. Therefore a name change may be needed in order to correct this problem.

<u>Integration Delay</u> (IX) is likely to force us to examine the characteristics of long delays that we may observe.

Name	Description
Delay (X) (no change)	Change in cadence, ≥~2 sec. delay, or delay between words
Extreme Delay (XX)	Long delay re: person's cadence, delay ≥5 sec.
Integration Delay (IX)	Delay ≥15 sec., no effort seen and gets item correct (?1 error)

Proposed changes scoring long delays.

When you find even one such case, I would appreciate it if you would let me know about it. Hopefully with 150 people looking out for this, it will not take us too long to figure out if this is a proper solution.

Your comments are welcome!
Please email me at jackkatz@buffalo.edu..

Reference

Katz, J and Marasciulo, D Sensitivity of the Central Test Battery – CD SSW Reports 23:1 February 2001 p 1-6

Distortion on CTB-CD? No!

Tim Holston found distortion on the CTB-CD as well as on the SCAN. He wondered if there might be a problem with the CD. He found the voltage from the Technics CD player was overdriving the audiometer. GSI suggested he get a Sony Walkman CD because it has adjustable output voltage (or use any CD player with no pre-amplification-jk).

(Continued from November, 2002) Speech-in-Noise Testing and Therapy

Jack Katz and Nannette Nicholson

In the last issue we described a boy named Randy who did not qualify for any special services at school because his general performance was not too bad. We had predicted TFM and ORG problems based on his history and he did indeed have those problems showing up on the central test battery.

We did not anticipate DEC but he had one sign of it (LNC Condition); then, because of TFM qualifiers (5 Qs), he also had the PS Qualitative score significant, another DEC sign. It was very strange that these TFM signs (Qs) should produce a DEC sign, but that's how it worked out. Had there been no LNC sign, I likely would have ignored the PS finding. I believe he may very well have a DEC problem but very mild, so that is not a major concern. But if we thought that it was a fluke, we would not have hesitated to overrule the PS result.

The reason why we could overrule that finding is because we are professionals who are supposed to get it right, regardless of what the test says. A technician must follow the rules, but professionals with good reasons can ignore an apparent false-positive sign. Fortunately, there is good reason to think that he does have DEC too.

In this particular case we reasoned that Randy would benefit from the therapy whether he has DEC problem or not. The reason is that if he is borderline in DEC, the therapy will quickly improve DEC, so he will have better understanding in quiet and noise. You may remember that in the past when we gave Phonemic Synthesis therapy, the kids improved in both PS and Speech-in-Noise, but when we gave SN therapy, only SN improved. The reason is that PS helps us to process better so we benefit quite a bit in noise because the intrinsic redundancy is increased with better DEC. But SN training helps us in noise, so on a PS test there is no special benefit as it is a test in quiet.

The only real dilemma for us was that there was a Type-A (INT-3+). There were no special signs that he was truly an INT case as usually they would have severe academic disabilities (especially reading and spelling). Because he was primarily an 'anterior' case, that is TFM, we presume that he did not have such severe academic problems.

We reasoned that he could be the false-positive case that I had feared when we established the more sensitive Type-A criteria with the NOE scoring. We did not notice any false-positive problems for the longest time so it was bound to happen (as on any statistically-based test).

I believe Randy likely has no INT problem. To be fair, we could not think of any therapy or accommodation so it was academic whether he has INT or not, as we could see no influence of it. So we did mention it as a finding but gave no recommendations.

Summary and Final Word

In this case we found two of the Categories that we predicted we would find and made important recommendations to deal with them. As you know this is typical. But when we find unexpected Categories based on the academic/scholastic problems that we have been given, or we do not find the expected ones, we are challenged to figure out what is correct.

We troubled you with this complex case because it did not fit some of the expected patterns. If we had to scratch our heads about what to do in this case, we figured that many of you would be similarly perplexed. We also wanted to be sure that you knew that if you have strong reasons to believe that there is a false-positive or false-negative finding, that you must use your judgment how to handle it. Statistics provide a strong probability but not a certainty, no matter what test you use.

ASHA Conference on APD: A Brief Report – Jack Katz

On February 15th and 16th 2003 ASHA held a conference dealing with CAPD in Scottsdale, Arizona. The timing would suggest that part of their concern was the lingering shadow of the Bruton Conference (Jerger & Musiek 2000). As many of you know many of us were distressed by the recommendations of that conference (*Audiology Today* March/April 2002). Jerger and Musiek were given the opportunity to respond to our concerns but chose not to discuss any of our issues. While we would take that as acknowledgement that our statements were correct, it left the question of guidelines for the profession up in the air.

At the Scottsdale conference, Frank Musiek was given the first opportunity to present his thoughts regarding diagnosis of APD in children. He did stress the value of electrophysiological procedures in the diagnosis but reiterated more than once that this was not necessarily recommended for all evaluations. This was important because it suggests that he distances himself from the notion that ABR and MLR should be part of the minimal test battery.

The next speaker was Jack Katz, who was asked to speak on the Buffalo Battery. In order to deflect statements in the literature that the Buffalo Battery was simply a theoretical model, the underpinnings and research base of the Buffalo model were presented as well as details of the model. It was interesting that during the conference the SSW and to a lesser extent Phonemic Synthesis and Speech in Noise tests were presented or discussed in case studies by other individuals.

Other presenters at the conference included Teri Bellis, Gail Chermack, Gail Rosenberg, Susan Brannen, all audiologists, and Gail Richards, a speech/language pathologist.

It has been very encouraging in the last year to see the direction in which our profession is moving with regard to CAPD. This is just in time for the tremendous increase in public interest and recent referrals for this problem. We hope that if you attend the AAA Conference in April, that you will attend the SSW Study Group, which is part of the AAA Roundtables. (Saturday 12 – 12:50)

ARE YOU USING OAEs IN YOUR CAP TEST BATTERY?

Is anyone out there using OAEs in their test battery? If you can share any significant or unusual results on a case, that would be interesting. Please contact Susan Brandner at writeear@msn.com .