SSW Reports

• IQ vs. APD: Another Approach

Vol. 34 No. 4 August 2013

In most cases professional consensus is developed through open discussion of different approaches. When consensus is not achieved professionals can examine the logic and evidence of the arguments to determine how they choose to deal with the issue. In the last issue, my friend and colleague, Jay Lucker, presented three interesting cases to illustrate the value of his approach in determining CAPD in those with low IQs. We surely agree on some aspects (e.g., I heartily agree that a low IQ does not disqualify a person from being tested for CAPD). Here are some points where we might differ and what I have found to be a good general approach. jk

* * * * * * * *

Determining/Not Determining the Presence of APD Based on IQ: Another Approach

Jack Katz

My first question is: Can those with low IQs improve with Auditory Training?

I started to think about this many years ago when an SLP asked for my help with a young man who was released from a residential setting for people with very low IQ's (i.e., intellectually challenged). I believe that about that time people started to realize that the IQ score was not a measure of the innate ability to learn. There was a realization that by keeping people isolated and without intensive training made it a self-fulfilling prophecy/program. The new concept was that IQ was merely an achievement test - how much has the person learned to date, but it does not tell us how far the person can go.

Almost 40 years ago this man in his mid 20s was referred to me. He was institutionalized since he was 6 years old and he received no (intensive?) education. After his release his SLP felt that this man, who was mute, actually had a severe case of CAPD, as a major part of his problem. The therapist felt that to help the man to reach his current potential he would likely need auditory training.

I decided on an approach to see if we could help the man improve his listening skills. The first day that he came to our clinic, I worked with the patient for about an hour and showed my colleague how I would approach this challenge. During the session I taught "Alan" 4 or 5 words. The man simply had to point to the item that I said. While we were working the clinic had closed up. As the three of us walked to the front door the man suddenly stopped and in a worried manner he pointed to a closed door and said "*book*!" intelligibly enough for us to understand. The SLP realized that the man had left his book in the waiting room. So far as we knew, that was the first word he ever said. What if he had, had schooling and training years ago? How far could he have gotten by that time? This experience made me suspect that even a person with a low IQ could improve his CAPD with therapy.

Next: What does a low IQ tell us?

An IQ test score is not magic. IQ tests often include memory tasks, vocabulary tasks, making block designs etc. What is so special about these tasks that makes the test a measure of a person's *innate* (and never changing) abilities? The current view is that IQ tests are simply achievement tests. We learn how far the person has come in these particular aspects, but what do they tell us about how far the person can go? My experience tells me that IQ is a poor predictor of one's ability to improve in CAP and related skills. Let's see what can happen if we do auditory training with those who have low IQ's.

Working with people who have low IQs

In the late 1990's I wanted to test my suspicion that people who have low IQ's can be helped with auditory training. I contacted an SLP and asked if I could work with one of her clients who had a low IQ, but who might also have CAPD. (I showed her the characteristics of a Decoding disorder). She said that I could work with a 24 year old man who had those symptoms. She wanted me to try out my ideas, because he had not progressed in the past 2-3 years, yet she felt that he had the potential to do so.

"Corey" had a 31 IQ, could make sounds, but had no intelligible speech. He could not understand even the simplest of instructions, so we trained him by modeling what his SLP did. After the SLP modeled each little step I gave him the same instructions and task and he did the same thing. We started him with the Phonemic Training Program (PTP) to point to a card with the letter "M" when I said /m/. Then the card was removed and he pointed to the "s" card when I said /s/. Then the SLP modeled the discrimination task /s/ vs. /b/. And when Corey got his turn; he did it correctly, but with little confidence at first. But he did it! I exclaimed to my colleague "the sky's the limit."

Four years later he was speaking words (that we taught him); he could read well over 100 words in various contexts, count to14 at which point he knew enough numbers for our purposes. He learned to sing a few songs. He even made some silly little jokes.

His IQ was not retested, but that was of no great concern to me, because if his score went up it would simply reflect that he now could do things he had never done before. In fact, one time I could not understand what he said. So, with a smile on his face he wrote the word for me. In the sheltered workshop they sometimes gave him written instructions for the various steps. An increased IQ would still serve as an achievement test and tell us how far he had come.

But what if it remained at a 31 IQ? No problem. What we taught him and what the tests were testing might not coincide. Nevertheless, he was a different person who now knew that he lived in Buffalo and he could take simple instructions and could do many other things that he could never do before.

Does a low IQ mean that the person is not smart enough to pass the CAP tests?

Another way to state the above question: Can a person with a low IQ perform satisfactorily on CAPD tests? How high does a person's IQ have to be to pass the SSW test? That was one of our concerns when we tested 33 adults in a residential facility with IQ's ranging from 36 to 80+ (Hadaway, 1969). We were unable to test one person who had a 22 IQ, but were able to test all the others. Back in the 60's we were interested in "brain lesions" so we used the SSW 'Original Analysis' norm that was used at that time. The SSW

percent of error minus the percentage of word recognition error for that ear gave the Condition score. If this error score did not exceed 15%, the result was normal. At least 2, and possibly 3, of the subjects had all 4 condition scores that were within normal limits. When I recalculated at least 2 of those scores using the current 'Traditional Analysis' for CAPD, they were still normal. One of the two subjects had an IQ in the 40's and one in the 60's. Although most of the other subjects had severe or moderate scores, there were still a few that had normal or essentially normal SSW scores.

How could a person with a 40-something IQ with years spent at a residential institution show he could come up with a normal SSW score? If 1 in 10 of these individuals by some good fortune did not have significant APD, how much of an IQ would it take to respond well on the SSW test? Remember that echolalia is common in that population so their responses may be better than one would think, especially when the task is simply to repeat what you heard.

A person's IQ doesn't tell us if they <u>don't</u> have CAPD or won't benefit from auditory training.

I received permission to do therapy with 4 high school students who had Decoding symptoms, with IQ's ranging from 42-86, once a week for about 45 minutes during 2 semesters. Just as in the case of Corey the therapy was geared mostly to Decoding because it was felt to be the most basic skill. Also, improved Decoding should facilitate learning the other skills. Figure 1 shows the initial and final test results for the 4 students. Subject *M* aged out of high school so his post semester-1 scores were used as his final scores.

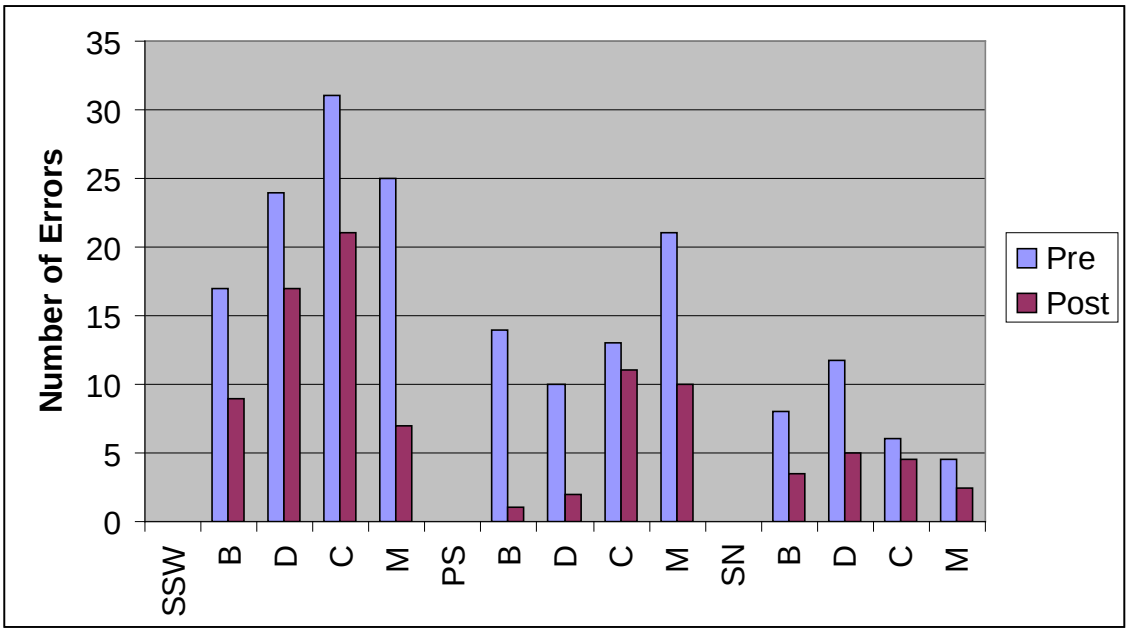

Figure 1. Initial and final Buffalo Battery test results for 4 students. Test scores shown from left to right for student with highest (86) to lowest (42) IQ. Normal limits for <u>number of errors</u> are: Total SSW= 6, Phonemic Synthesis Qualitative= 8 and for Speech-in-Noise average for the 2 ears= 4.25.

Figure 1 shows the initial and final scores on the 3 Buffalo Model tests for 4 high school students with 86 IQ (for subject *B*) to 42 IQ (for *M*). The blue pretest bars show that the SSW scores were pretty much in the order from highest IQ to lowest except that *M*'s score that was better than *C*'s (so #4 was better than #3).

This shows a pretty good correspondence between IQ and SSW as we had found in Hadaway's study. Phonemic Synthesis (PS) showed a fair correspondence to IQ, but Speech-in-Noise appears rather inversely related. Despite the very small sample size there appears to be some relationship between IQ and at least SSW and PS tests. What is more important to me, and to the families, is whether the child can improve with therapy.

Let us see what the effect of training revealed on retest.

Figure 1 also shows the results of retest (red bars) following therapy. Three main questions were of interest: a) how did improvement relate to IQ on the various tests (did those with higher IQs benefit more from therapy) and b) how close did they come to normal with therapy?

Did improvement relate to IQ? Did those with higher IQs improve more? To simplify the analysis, let's look at *B* and *M*, (i.e., the girl with an 86 IQ and *M* the boy with the 42 IQ.) Both made fine progress on the SSW. But *M* not only had greater improvement, but ended up with a better score than *B* (albeit by just one point). No, the amount of improvement did not seem to relate to IQ. What was so impressive is that *M* improved by more than double that of *B*. The student with a 42 IQ ended just 1 point from normal limits and the student with 86 IQ missed it by 2 points.

For the PS test *M* had the poorest score and *B* had the next poorest. In this case both made excellent improvement with *B* making 2 points more and ended up within the normal range. *M* made almost as much improvement as *B*, but still had a way to go to reach the normal range. On the SN test *M* had the best score initially and although *B* made good improvement she did not catch up to M; who also improved!

If there was an advantage to those with higher IQ's in therapy; it was not apparent from these cases on these tests. Initially the SSW favored the 2 with higher IQ and the improvement favored the 2 with the lower IQs. On PS the 2 with higher IQs had marginally better scores but also improved the most to have normal scores. For the SN procedure the 2 with higher IQs had more errors initially and made more gains with therapy, but at the end *M* and *B* both had normal scores. So there was no major benefit to having a higher IQ among these 4 high school students. More importantly than all of that; ***all of the students showed improvement with therapy regardless of IQ***.

Are IQ and SSW Results Well Correlated?

A final point has to do with correlation. In the group of 33 adults in the residential institution who received the SSW test the correlation between IQ and SSW was significant, but not very strong. It was r = .36 which tells us that it predicts only 6% of the variance. Based on this study, the amount of variation in IQ scores predicted less than 10% of the subject's SSW scores. Well, what determined the other 90% of the scores?

A positive correlation does not indicate a causal relationship between IQ and SSW, but if it did there would be three general possibilities: a) IQ influenced part of the SSW score, b) the SSW influenced part of the IQ score, or c) some third factor influenced both of them in a similar way for part of the score. I suspect the answer is 'c-plus'. Their CNS mal-development, whatever the cause, affected some of the regions that process auditory information (e.g., the auditory cortex etc.). In that case the brain disorder caused auditory

dysfunction and limited the person linguistically and cognitively as well. The '+' part is: having limited auditory skills (e.g., Decoding) also will make cognitive achievement more difficult and possibly vice versa.

More importantly, I am positive that auditory therapy will help people with poor IQs to improve their weak CAP skills. The point is; give them help and give it as soon as possible. My philosophy, in this aspect of our work, is that when in doubt about APD, or not, err on the side of giving them help. If you are wrong the person may not get a lot of assistance, but it surely will not hurt. However, if you choose no therapy when there is a CAPD; then it is likely that a person who has this treatable disorder conceivably will struggle unnecessarily with it for the rest of his/her life.

Conclusion

Knowing that a person's IQ is low gives us an idea about the person we are about to test. Perhaps we need to be ready to simplify instructions, to substitute simpler tasks etc. It also increases the likelihood of CAPD! But in my view, it does not tell us if the person has APD or not and it does not tell us if therapy will help or not. Most likely therapy will help if CAPD is present and will not hurt if it is not.

References

Please note: Much of the information in this article was reported previously in other publications:

Hadaway, S. (1969) An investigation of the relationship between measured intelligence and performance on the Staggered Spondaic Word test. M.A. Thesis Oklahoma State University.

Katz, J. (2009) Therapy with the Intellectually Challenged. In *Therapy for APD: Simple Effective Procedures.* Westminster, CO: Educational Audiology Association, 133-140.

Katz, J. (2009) Central Auditory Influences in Adult Aural Rehabilitation. In J. Montano and J. Spitzer (Eds) *Adult Audiologic Rehabilitation*, San Diego: Plural Publishing Co., 445-456.

Katz, J. and Tillery, K. (2002) Can Central Auditory Processing Tests Resist Supramodal Influences? *American Journal of Audiology*, 14, 124-127.

Katz, J. (1975) Differential Diagnosis of Auditory Impairments, In R. Fulton and L. Lloyd (Eds) *Auditory Assessment of the Difficult-to-Test*, Baltimore, Williams & Wilkins, Co., 120-153