SSW Reports

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A Modest Proposal

Jack Katz

[For your information this was written in June 2009; long before the Occupy Wall Street movement.]

In 1729 Johnathan Swift wrote a satire, "A Modest Proposal" at a time, in Ireland, when the gap between rich and poor was great and growing. He proposed that young children should not be a burden to their poor parents. Instead the poor could sell their young children to the wealthy who could cook them in various ways and eat them. In this way the poor might live a little better and the rich could have a wonderful delicacy. Hmmm, I don't think this sacrcastic and outrageous suggestion was meant to be a modest proposal.

My modest proposal, by comparison, is not a satire at all. But you will have to judge if it is outrageous or not. My proposal has to do with the Buffalo Model tests. But it would be outrageous to suggest that anyone should cook them and eat them. Here is what I was thinking...

Most, or all, readers of *SSW Reports* use the SSW test. [Actually, the SSW is the most used test by audiologists (Emanuel et al. 2011)]. Most, or all, of them use the Total as well as the four Condition scores. And, it is very likely that they also use Response Bias (Reversals, Ear Effects etc.). But, I suspect that not all use the Qualifiers. Those who do use them would surely tell you that they get a great deal of disagnostic information and excellent insights into their patients using delays, quick responses and other Qualifiers. Did you know that there is also a special analysis that is used to derive site-of-lesion information (with or without hearing loss) and that there is a special analysis for APD testing when a person has a hearing loss?

I am positive that more than half of the *SSW Reports* readers use the Phonemic Synthesis (PS) test; perhaps almost all do. Some audiologists have said that phonemes are not audiology so audiologists should not use the PS test. Well, if every sort of click and noise is audiology and puretones, syllables, words, and sentences are audiology how can anyone declair that phonemes are <u>not</u> audiology? What's more, phonemes are a little less language than words. So in a sense they are more specifically to auditory processing compared to words and sentences. You probably have heard that Luria (1970) found that the auditory cortex area is the only place in the brain that processes phonemes. So it holds an elevated but underused status in audiology. Try it and see!

The third test in the Buffalo Battery is Speech-in-Noise (SN). Some people have said that SN tests are not good. While there are limitations to this test (as every other test) this is too important to ignore. In the

Buffalo Battery we use just 25 items per ear, so this limits the reliability of the measure. We limit the items to save time and minimize fatigue; however, if desired one can give 50 items per ear So when there is a concern for the precision of the measure the audiologist can do additional testing. The reason why I feel it is indespensibe is that SN is one of the most common complaints so we should get an idea of what is going on to validate this issue. For example, it is much easier to request an ALD if we can show that there is a major problem in noise. In addition, we can give WINT therapy and improve the skill, but such a recommendation is much more valid if we can document that there is a SN problem.

So What's Your Proposal?

Before I get to my Modest Proposal I would like to make one or two more points. The Buffalo Model has 37 indicators. Part of the strength of the model is that we have three tests that are very different, so when we see Decoding issues on both the SSW and PS tests and TFM signs on all three tests we can see these categories jump out at us and provide us a high level of confidence. We know that each test can be more sensitive than the others in any particular case. Thus, all experts say that we need a battery of tests. The Bufflao Model does not count on any one score, but rather the pattern of scores and a comparison with the 'facts on the ground' (especially on the BMQ-R).

When a psychologist reports a WISC score for vocabulary or block designs we don't have to ask did the person administer or score it in the standard fashion or in some variation, because there is just one way to administer and one way to score it. But when it comes to the SSW and the rest of the battery we have to ask lots of questions, "Hey, did you consider Response Bias and Qualifiers? Oh, just Order Effect, Reversals and delays? Hmmm?" For PS what about the Qualitative score and various Qualifiers? And for Speech-in-Noise, "Did you use the Modified W-22 on the Central Test Battery-CD or ...?"

I believe that these variations make communication and interpreting the results more difficult and less precise. Two nameless researchers said that they were testing the SSW's accuracy (and thereby the value of the Buffalo Model). If so they were obligated to use the test as it is supposed to be administered. Instead they indicated that they had their own way of determining the person's single category. In addition, they choose the *one score* that they had that was more deviant (more standard deviations from the mean than the next poorest score). This might mean that they didn't even take a single test as an indictor but just a piece of one test to determine the person's category (nothing like the standard). When they found the SSW was essentially worthless in categorizing APD they decided that the whole Buffalo Model did not work. And as I recall they decided that category systems (in general) likely don't work either!

This is perhaps an extreme misuse of the Buffalo protocol, but it does show that when we feel free to make our own variations on our tests that we threaten the validity of the procedures.

My Modest Proposal

I believe that the Buffalo Battery is a darn good system for assessing APD. It is not perfect, but I find it consisently accurate eventhough some aspects may remain uncertain (e.g., is the parent correct - on the BMQ - that the child has an INT issue; or is the SSW correct that the child has an ORG issue).

My proposal is that if you use the SSW see what additional benefits come from the Qualifiers. Ask a colleague who uses Qualifiers if they add to their knowledge. This is free and most meaningful to parents who are trying to understand their child's problem. The same would apply to the PS Qualifiers and the Qualitative score. If you don't use the Qualitative score you will lose sensitivity when the person you test has had Speech-Language, Reading and/or special phonics training. Also important is to consider the SN scores, difference socores and interaural difference.

One audiologist used her own SN test but applied the norms from the Cental Test Battery - CD. If there is any test that should be given EXACTLY as normed it is SN. Every single factor can change the sensitivity of the test (e.g., the speaker, the calibration levels on the CD, the exact frequency levels and the signal to noise ratio).

My Modest Proposal is that if you use the Buffalo Model tests try to give the procedures as close to the standard as possible. In this way you can be more precise in your evaluation and we can learn from you because we know how you gave the test and how you scored it. If you do the therapy try the standard approach first, but of course, if it doesn't work well enough make any necessary variations to succeed.
Try the Buffalo Model Questionnaire-Revised to see if it is not as good as I claim at various steps along the way in evaluating a person and/or judging therapy. I have been amazed how well these procedures performed for me and hope that I am not the only one to see how well the Buffalo Model works.

But what about Ying and Yang?

The Modest Proposal makes an important point that tests should be used as they were normed and found to be most effective. To get the full advantage of the Buffalo Model it is important that you do all 3 diagnositic tests. I would encourage everyone at least to try them.

But is it realistic that we should never deviate from the standard procedures and always administer all 3 tests? To that my answer would be 'no'. Surely there are times when we must violate both ideals. When I was a graduate student at Syracuse University, Dr. Louis M. DiCarlo was my major professor. Yes, the very same DiCarlo as the ASHA *DiCarlo Award* for the best clinician in the country. That is an appropriate honor in his name because, as far as I am concerned, he was the best clinician in the world! He did magic.

Dr. DiCarlo told us that when a patient comes to us it is our job to do what is needed to help the person. If the standard methods did not work, or not do the full job, then we had to figure out how to do the complete job. That was wonderful training.

My statement to my students is that, 'the Audiologist gets the goods'. That is, if needed the Audiologist stands on his or her head or juggles hot coals in order to make sure the person improves. Usually getting the goods is not as difficult as standing on one's head or juggling hot coals. But that is our goal.

So if it requires that we do a standardized test differently in a particular case, we would try to maintain as much of the integrity of the test as possible, as long as we can get reasonable results. When the situation is desperate we might have to lower our standards to get as much as we can.

The same is true for the test battery. Fortunately our battery takes only ~45 minutes so

most children can handle it. But even then we make sure to give them a needed break now and then. When the situation is dire we may need to omit a test or substitute a simpler test.

By modifying our procedures, whether diagnostic or surely for therapeutic procedures, we can usually get something of value or something to build on later. I feel that we need to attempt to do it the 'right way', but if that is not going to work we creatively modify the plan. Please note that my modest proposal does not suggest that you cook or eat anyone.

Emanuel, D., Ficca, K., & Korczak, P. (2011). Survey of the Diagnosis and Management of APD. AJA, 20, June pp 48-60.
Katz, J. & Zalewski, T. (2011). Buffalo Model Questionnaire-Revised. *Educational Audiology Asso*.
Luria, A. (1970). Traumatic Aphasia. Mouton & Co., The Hague.

What Makes Perseverations Tick?

Jack Katz

Q1 Please define a perseveration (P).

A perseveration (P) is an incorrect response to a test word using a previously uttered word, non-word or sound(s) that was correct or incorrect before. The exception to this rule on the SSW is when a word is repeated in the same item it is not considered a P. For example, when the item *upstairs down town* is given and the person says *upstairs up town,* we refer to this as the available word and not a P. We assume that the person is simply trying to complete the spondee.

Q2 Are perseverations in Aphasic patients the same as for APD cases?

A2 In aphasics I think it is usually associated with the frontal lobe (e.g., Broca's) while on the SSW it is associated with DEC which is in the posterior temporal region (e.g., Wernicke's)? I believe in anterior brain lesion cases (& those with dementia) that the problem is memory. They don't remember what they said or asked before, so they repeat themselves often. In the poor Decoders (APD and some brain damaged cases) it is just the opposite, they incorporate the sounds or words that they remember from before that they or the CD has recently said.

Q4 What can we learn from Perseverations besides that it is a sign of DEC difficulty?

A4 Here is what I found when I looked at 67 files of children who were seen over the last few years.

Q5 How were the data gathered?

A5 Each child was assigned to one of four subgroups based on whether they had Ps on the SSW and/or PS test or neither; the first time they were tested. The groups were: Ps on both tests, Ps on the SSW-only, the PS-only or Ps on neither test. To limit the influence of any one subject on the data only 6 Ps were considered for the SSW test and 3 for the PS test. When a child had more Ps different schemes were used to choose the 6 or 3 instances so that there was no consistent bias to the data.

Q6 How often do kids with APD perseverate?

A6 Perhaps the question should be how often do we notice SSW Ps? As I recheck score sheets for Ps I often find more than I did originally. If you don't have the EAA Perseveration Finder life will be much more difficult. For this reason it is included again with this issue.

Data for 67 children (actually 6 to 21 years of age) were divided into 4 groups; as noted above. The means are shown in Table 1.

P-Group	% N	SSW Ps	SSW Total Error		PS Ps	PS Total Error
SSW & PS	37	4.2	25.8		2.0	17.1
SSW	18	4.5	30.9		-	18.2
PS	9	-	10.0		1.0	18.3
Neither	36	-	15.4		-	19.3
Total	100	2.37	21.68		0.84	18.19

Table 1. SSW & PS Perseveration errors vs. total errors for 67 children divided into groups based on having significant Ps on the 2 tests.

You can see from Table 1 that those who had Ps on both tests and Ps on neither test had about 1/3 of the children each. This suggests that those with Ps on one test were more likely to have them on the other as well. The reverse was also generally true. If the person has no Ps on one test they were more likely to have none on the other.

The average number of Ps on the SSW (for those who had Ps) was 4.2 and 4.5. These individuals also tended to have twice as many SSW errors as those with no Ps. This makes some sense, Ps are errors so the more errors the more likely they have Ps. Let's see if that pattern is reflected in the individual data. Perhaps, but it appears more like a few severe cases had lots of Ps.

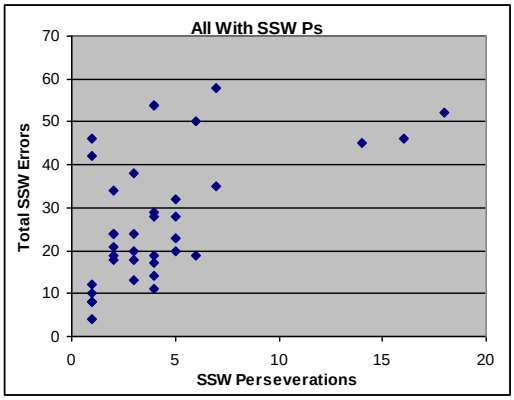

Figure 1. Number of Ps based on SSW errors.

Q7 What appears to be the reason for the SSW Ps?

A7 It is sometimes hard to figure out with any confidence for a particular P, but looking at group data helps us to see what is likely going on. I considered 8 reasons:

1. **Proximity** – how close P was to previous word
2. **Sounds same** – the P has one or more sounds like the error word
3. **Own error** – P on own previous error
4. **Position in item** – P was in the same position as in previous occurrence (25%=chance: 1st, 2nd etc. word)
5. **Frequently occurring word** – heard it more times on test
6. **Familiar word in general** – primary word
7. **Spondee** – P on both words of a spondee (one word calls up the other)
8. **Prominence** – louder, longer, attractive

Most of these predictions are not hard to test but two or three would be challenging. Fifteen SSW items had 2 to 10 Ps (out of 67 subjects). So these are likely real Ps and unlikely not just chance errors.

Proximity was very high with 87% of the words (13/15 Ps) that were 1-5 items away from the P.

Sounds the same ($\geq$1 sound was the same as missed word). Nine of the 15 Ps (60%) that were studied had 1 to 3 of the same sounds as the missed word.

To get an idea of how likely it would be to get 60% for 1 to 3 sounds by chance, I blindly pointed to 15 pairs of words on the SSW form. 6/15 (40%) had only one or 2 sounds the same so there were fewer cases and the number of sounds that were the

same were fewer. The total number of sounds that were the same were just 7 for these 6 words compared to 13 for the 9 Ps. So it looks like (and is logical) that there is a greater likelihood of a P if one or more sounds are the same as the missed word.

Seven of the 15 items (47%) the **original word and the P-word were in the same position** (#s 1-4). Since chance would be <4 in the same position and not 7; it seems that this too had an influence on the Ps.

Another factor is whether the person **heard the P-word more times than the missed-word** on the test prior to the P. Yes, 9 times out of 15 (60%) the P was heard more than the missed word. On 3 Ps they were equal and 3 times the missed word was heard more frequently (20%) than the P-word.

The last potential influence that was studied was which word was **the more common in the child's vocabulary/communications**. I judged that the P-words were more common in 8 cases (53%), three were equal and 4 were more common for the missed-word (27%).

Each of the influences that we looked at seemed to play a role in perseverations we found. The chances that all 5 logical factors would provide data supporting their influence; greatly increases the likelihood that Ps are associated with these factors. This suggests that memory and not forgetfullness are associated with SSW Ps and that Decoding and not TFM factors would best explain them (as has been part of the Buffalo Model for 20+ years). Proximity is clearly the most powerful influence Ps.

1) Proximity –very-very important (we remember the most recent words best); 2) heard the P word prior to the P more often than the missed word on the test, good indicator (heard the P word more often than the missed word would improve memory for the frequent word); 3) sounds alike – good (when fishing for a word we think of words that sound like the piece we remember); 4) more common words were more likely P; so that looked pretty good (when searching we consider common words in our lexicon); 5) the position of the item seems to relate to Ps. If it's the same as the missed-word there is a greater chance it will be recalled - pretty good (position of word was likely held in memory and helps to call up that P-word). Another factor that I did not consider originally was if Ps are more likely early or late in the test: (#a-20=55% and #s 22-44=45%).

Q8 Are all the Ps due to what you think they are or are some just chance errors?

There are surely some chance errors that may look like Ps. But when we see several we can be quite sure that most are Ps (and not chance). We can estimate the number of chance responses that look like Ps by seeing how often we get a response that would be a P but it is <u>before</u> the word appears on the test. I noticed 3 such instances that if it was after it instead of before it would have constituted a P. I was not looking for them so there may have been more, but not many.

Q9 When we see the reuse of a word on the same SSW item is this a P?

No anytime you have such a repetition (e.g., up stairs up town) this does not count as a P. It is called the 'available word'.

It is reassuring that the perseverations on the SSW test follow logical patterns. Most of them suggest that the person remembers (consciously or not) the word from saying it or hearing it before and therefore when they are unsure of the word or do not know it the word pops into their head. The most potent factor appears to be proximity. * * * * *