Commentary on "Evaluating Articulation and Phonological Disorders When the Clock Is Running"

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In this collection of articles on phonological assessment "when the clock is running," the need to conduct efficient assessments is not in question. Increased demands and costs have dictated this need across the profession of speech pathology. The questions of how to become efficient and what constitutes the bare essentials, however, are in question. Each author shares the belief that a thorough history intake and some form of language testing are needed so that clinical decisions can include possible etiologies, concomitant issues, and prognosis. Stimulability testing and the practice of sharing preliminary results within the 60 to 90 minute session are also reflected in each paper. The authors differ, however, in the method or instruments used for collecting speech samples (i.e. standardized tests versus spontaneous speech), the extent of the phonological analysis conducted, and the amount of attention paid to intelligibility issues. Furthermore, only cursory mention of computers is made, and this is typically done as an aside with an explanation that computers were not used because they are too time consuming. Our commentary will avoid the much-debated issue of standardized tests versus spontaneous samples, and will focus on the extent of phonological assessment needed to capture a child's system, and the need to address intelligibility and whole word properties. Additionally, we believe the authors have underestimated the value of computers in this process, and thus make suggestions on how computers can increase efficiency and reliability during phonological assessments.

Miccio's analysis uses both independent inventories and consonant error patterns, making the reasonable assumption that practicing speech pathologists should evaluate both the phonemes a child has acquired and the patterns or processes that result in substitutions. Micco first uses a place-manner-voice analysis to determine if there is substitution predictability, and then chooses appropriate independent analyses based on the amount of correspondence to the adult target. Although this approach yields pertinent information about a child's current system, our experience raises concerns whether even the most experienced speech pathologist could do these analyses in a 90-minute time frame. It is this time issue that leads Tyler and Tolbert and Hodson, Scherz, and Strattman to resort to phonological tests, a faster procedure that can yield information to assess whether a phonological delay or disorder is present and give at least preliminary data on what those processes are. From that information, probes can be conducted to validate hypotheses and examine the child's ability when given support, using an approach similar to Bleile's description of "better abilities." In any case, we agree with Hodson et al. that it is the pattern or process that needs to be identified in the assessment, not the individual phonetic error. Hoffman and Norris conduct a cursory tally of which sounds are correct and incorrect, but fail to mention substitution errors and what underlying process accounts for the error. It is hard to see how these authors could select efficacious therapy targets to remediate a phonological problem, particularly if the child does not have a concomitant language delay.

Identification of phonological processes, however, does not capture a child's intelligibility nor the closeness of his or her productions to the adult target. We, as clinicians, are eager to look for patterns of error, but the child and parents want to deal with the issue of intelligibility. Several of the authors opted for standardized tests because these yield normative data needed for eligibility, yet we question the decision to focus more on the number of errors made during a test (e.g., GFTA-2) than on the child's intelligibility and corresponding success as a communicator. The practice of focusing on phonological assessments at a segmental level continues despite our knowledge for several years now that the complexity of the word attempted can greatly influence the phoneme in question. For example the /tr/ cluster in "truck" cannot be compared to the /tr/ cluster of "Christmas tree." Even if the child produces /tr/ correctly in "truck", but omits the final /k/ to produce [trʊ], this may be less intelligible than an incorrect /tr/ production in "Christmas tree" produced as [kɪsmɪs ti]. To this end, we suggest that

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something beyond a best estimate of intelligibility (e.g., Bleile) be a critical part of a phonological assessment. Hodson et al. use a percentage of intelligible words in a language sample which gives the evaluator a quantitative number upon which to base level of severity and to give a baseline for gain. Intelligibility measures, however, are difficult to control due to familiarity and contextual issues. Ingram (in press) and Ingram & Ingram (2001) have developed and clinically implemented, respectively, a measure of whole-word proximity (i.e., phonological mean length of utterance; PMLU) that attempts to objectify intelligibility by measuring the child's ability to approximate the adult target. This is not a direct measure of intelligibility, but it assesses how close a child gets to the adult representation. In the example of "truck" versus "Christmas tree" above, the child may decide that the need to maintain three syllables in "Christmas tree" is more important than producing a correct /tr/ cluster so he puts his effort into what allows him to maximize intelligibility.

As stated above, the authors mostly share the opinion that computer analysis is time consuming, and thus unfeasible for a 60 to 90 minute assessment. While not addressed by these authors, it has also been the case in the past that there are cost and availability issues associated with computer usage. In assessing computer applications, however, it is important to identify the roles in phonological assessment during which computer applications may or may not be useful. Computer applications are potentially useful for language sampling, transcription, analysis, and storage.

None of the authors recommend the use of computers in the language sampling, and subsequently, transcription[1], and storage. Some recommend audio recording (presumably using cassette tape recorders), and others do on-line recording. We assume that the latter procedure is in response to the tedious and time-consuming process involved in transcription when done from tape recordings. It is true that speech samples collected during 60 to 90 minute assessments are relatively small, and insights can be obtained from a hand written record. As mentioned in Bleile's article, computers in the near future will likely be able to recognize handwritten transcripts, and possibly recognize speech reliably enough to automatically transcribe the speech sample. Despite that, the availability and affordability of computers (and the existence of efficient software applications today) negate the argument that it is not feasible to use computers for language sampling, transcription, and storage. The cost of a decent computer is less than many of the standardized tests we use to evaluate clients. Computers can aid substantially during the data collection and transcription section of the evaluation. We advocate recording the sample directly onto the computer, creating a digital copy. This phase does not add any time to the evaluation and is analogous to pushing a tape recorder button. The advantage of doing this, however, is that the resulting digital file is easily accessible for subsequent selective transcription (i.e., no rewinding is needed) that can supplement and possibly validate any on-line transcription that is done. Software packaged with today's computers or low-cost or shareware programs (e.g., CoolEdit, c.f. Johnson, 2000; Goldwave, c.f. Craig, 2001) can be used to edit and modify (e.g., enhance the volume or slow down) the captured signal. We are not necessarily suggesting that the whole sample be transcribed using digital recordings, as many of the child's productions can be accurately transcribed online. Our experience, however, is that accurate online transcription of transient unintelligible words and segments is challenging. A recording which allows one to quickly access a particular word and select just that item to listen to a few times will increase our transcription confidence. The waveform for a particular word can be pulled up in an acoustic speech analysis program (e.g., Speech Analyzer, Summer Institute of Linguistics, 2001) to give us even further confidence. In addition to the benefits of data collection, the digital files help the evaluator illustrate particular errors to the parents, and are useful for comparison to posttreatment speech samples. The language sample can easily be stored by copying it onto a CD, and can be duplicated as needed.

As for the use of phonological assessment programs (cf. Masterson, 1999), only Hodson et al. recommend doing this, claiming that their computer assessment can be done in ten minutes or less. We have less experience in the development of computer applications in this domain (for the purpose of 60 to 90 minute assessments). We presume, though, that the time taken to input phonological data into an assessment package is far less than that needed to generate the detailed analyses produced by such programs if attempted by hand.

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[1]This criticism is also the case for the articles in Louko & Edwards (2001) where time constraints are not an issue.