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Myths and Realities of Language Sample Analysis

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Abstract

While language sample analysis (LSA) is frequently recommended for assessing children's language skills, many speech-language pathologists do not use it regularly. This article reviewed key issues surrounding clinical use of LSA to provide clinicians with a realistic overview of the process and encourage increased use of LSA in clinical practice.

Language sample analysis (LSA) is like flossing your teeth: it's something we all know we should do, but the majority of us neglect to do so on a regular basis. And, those that are flossing regularly may not be doing it correctly; are you sliding the floss up and down each tooth? While there is overwhelming support from clinical texts, journal articles, and our national organization for the use of LSA in clinical practice, the reality is that many clinicians do not use it consistently. And, those who are using LSA may be collecting and analyzing samples using methods that have not been empirically tested. The confusion and anxiety surrounding LSA may be due to several misconceptions about learning and using the language sampling process. In this article, I have identified several of the misconceptions associated with LSA and critiqued them using the existing literature and my own personal experiences in becoming a transcriber. The goal of this article is to encourage clinicians who are not regularly language sampling to consider including LSA into their routine and allow clinicians already using LSA to critically evaluate their practices.

Debunking Seven Myths

Myth #1: Language sampling is too hard to learn.

The most significant development in improving the efficiency of LSA has been the generation of language sampling software. Available options include the CLAN language analysis system available through the Child Language Data Exchange System (CHILDES), developed and maintained by Brian MacWhinney; Computerized Profiling (CP), developed and maintained by Steven Long; and the Systematic Analysis of Language Transcripts (SALT), developed and maintained by Jon Miller and the SALT Software, LLC staff. While CLAN and CP are available free of charge to clinicians and researchers, there is a nominal fee for the SALT program that supports program development, database development, and customer service. While all language sampling programs are fully capable of analyzing children's language skills, the SALT program has the most user-friendly interface (typical "point and click" system), embedded help options at all stages of transcription and analysis, and access to the SALT databases (described below).

The analyses completed using the software packages rest on the assumption that the sample has been accurately transcribed and coded. For many of us, we recall transcription as one of the lengthy exercises needed to get through graduate school. While a thorough

understanding of the English language system will assist in completing a fully descriptive analysis of children's natural language use, transcribers need to be able to identify only a few key language features for basic analyses from language samples. Transcribers must be able to identify and code bound morphemes, including verb inflections (e.g., talking, talks, talked), regular plurals (e.g., two articles), possessives (e.g., Roger's book), and contractions (e.g., Isn't she lovely?). Coding bound morphemes is relatively easy and is necessary to generate a sensitive measure of utterance length (i.e., mean length of utterance in morphemes) and also to avoid overinflating lexical diversity measures, such as number of different root words.

While learning to transcribe is easier than most people think, the importance of adequate training should not be understated. Attempting to begin the transcription process without completing sufficient training will inevitably lead to a frustrated and poor transcriber. In our lab, we have found that a 5- to 10-hour training period that includes an overview of transcription, description of the rules of transcription, and several practice transcripts is usually sufficient for becoming a proficient transcriber. Fortunately, there are numerous training resources available. Both CHILDES (<http://childes.psy.cmu.edu/>) and CP (<http://www.computerizedprofiling.org/>) provide documentation of transcription rules on their Web sites. The SALT site (www.languagelab.com) also provides written tutorials as well as short instructional videos and practice transcripts. One caveat to learning transcription procedures is that it can be contagious and can seep into other areas of your life! You may soon find yourself coding third person singular in your e-mails. Also, the more you analyze children's language, the more you will understand language itself. By implementing LSA in your routine, you will naturally learn more about language processes and be able to complete more descriptive analyses of your language samples.

Myth #2: LSA is too time-consuming.

In a survey of SLPs working with preschool-age children, Kemp and Klee (1997) identified that most clinicians who were not using LSA reported that they didn't have enough time to collect and analyze language samples. The biggest factor affecting the time required to collect and analyze a language sample is the length of the sample. The most commonly cited sample length recommendation is 50 complete and intelligible utterances (e.g., Lee, 1974; Templin, 1957). While this may sound like a lot, 50 utterances were elicited in only 4.5 minutes for children ages 2;6 to 6;5 and 3.7 minutes for children ages 6;6 to 13;3 (based on conversational samples from the SALT database). Even though 50 utterances can be collected in under 5 minutes, there is a considerably larger time commitment for transcription of the sample. We have found that it takes roughly 5 minutes to transcribe each minute of spoken language. With this benchmark, a 4-minute sample will take approximately 20 minutes to transcribe, requiring the clinician to commit just under a half hour for collection and analysis of a language sample. While 30 minutes is a substantial chunk in the busy clinician's schedule, it is considerably less than the amount of time required to administer, score, and interpret results from commonly used standardized language tests.

There is an emerging body of evidence documenting that reliable data can be generated from samples even shorter than 50 utterances. Narrative retells, for example, generate reliable data and are typically shorter than 50 utterances (Heilmann et al., 2008). Tilstra and McMaster (2007) also identified a number of measures that were reliable when using short (1- to 3-minute) narrative retells. Clinicians using LSA need to take issues of sample length seriously, because collecting an unreliable sample could potentially overestimate or underestimate a child's actual language level. At the same time, you need to be realistic and not be so intimidated that length issues prevent you from using LSA at all.

Myth #3: Language sampling is inaccurate and unreliable. What if the child didn't feel like talking today?

While performance variations can certainly have an effect on the quality of a child's language sample, this phenomenon is not specific to LSA. We have all observed children taking

a standardized test who are disengaged and give up prior to achieving ceilings and how performance on standardized tests can vary base on variations with administration procedures (e.g., amount of background noise or speed with which the items are administered). As with any language assessment, speech-language pathologists (SLPs) are required to use judgment to determine if data collected are likely to be representative of the child's actual skill level.

Once you begin the transcription process, you will soon realize that there may be differences between your transcription and someone else's. Such differences are compounded when analyzing the natural language use of children experiencing language difficulties, given that these children often have discourse formulation and speech intelligibility issues. Differences between transcribers are inevitable. In 2007, I completed a comprehensive literature review examining all articles that used LSA during the previous year. On average, there was agreement 92% of the time when two separate research assistants independently transcribed the same language sample. This result was relatively consistent across the studies. However, these differences have a modest effect on the actual language sample analyses (Heilmann et al., 2008). Therefore, when transcribing you should feel comfortable with the fact that there will be some error in your transcription, but that these subtle differences should have a modest effect on your end-state analyses. To minimize as much of this error as possible, ensure you collect a high-quality recording with minimal background noise and prudently follow the rules of transcription.

Myth #4: You need to be a master linguist to interpret language samples.

Additional memories from graduate school may involve sentence trees and complex coding schemes applied to language samples. However, it is relatively simple to calculate basic measures from your samples, such as mean length of utterance (MLU), number of different words, and percentage of language used in revisions and reduplications (collectively termed "mazes"). These and many other measures are calculated automatically from any of the software programs listed above. Full descriptions of available measures are available on the Web sites listed above and throughout the literature.

After generating language sample measures, clinicians are left with the task of interpreting their meaning. Interpretation of language skills is most commonly completed by comparing a client's skills to developmental expectations. The easiest way to access this data is by comparing a client's performance to the performance of his/her peers who completed the same task. The SALT databases provide the easiest and most extensive method of drawing such comparisons. Over the past 30 years, the SALT group has developed several databases of conversation, narrative, and expository samples collected on typically developing monolingual and Spanish-English bilingual speakers. These databases are part of the SALT software program and allow clinicians to easily compare measures from their clients to performance of transcripts from the database.

Myth #5: Because I don't have time to record and transcribe language samples, I just write down what the child says during the session. This is a fine way to analyze a sample and calculate MLU.

If this is how you collect and transcribe a language sample, you are not alone! Kemp and Klee (1997) identified that the majority of SLPs who were analyzing language samples were actually transcribing them in real-time. Klee, Membrino, and May (1991) documented 90% agreement between transcriptions completed in real time and those from a recording, which is comparable to agreement levels in the literature. On average, there were 183 utterances that were transcribed in real-time during a 20-minute sample (9.2 utterances per minute), which is an impressive amount of language to transcribe in real time. It should be noted that the transcriber was not the individual eliciting the language sample; the SLP was transcribing language from behind a two-way mirror during a parent-child conversation. Furthermore, the children's language skills were relatively low; MLU in morphemes averaged 2.6 (range = 1.8 – 3.4). While accurately transcribing 2- to 4-word utterances accurately is impressive, the accuracy would likely decrease as the children's language became more complex and if the SLP

elicited and transcribed the sample simultaneously. In sum, Klee et al. provided excellent documentation of a situation where real-time transcription may be feasible and provided strong motivation for future research in improving the feasibility of online language sampling. However, we need to be aware that these results do not transfer to all language sampling situations and recognize that there is not a strong evidence base to the practice of transcribing samples in real time. SLPs employing real-time transcription should use a high level of caution, if they choose to continue using such transcription practices.

Myth #6: To expedite the process, I collect my language samples when the situation arises: while I'm playing, when a parent is playing, when describing pictures, when telling a story, or when describing a process. That's ok, isn't it?

Each of the elicitation contexts listed above are perfectly acceptable methods of collecting a sample. However, measures from these different elicitation methods are not necessarily comparable. One of the beauties of language sample analysis is that it provides a method of generating measures from natural language use, eliminating the decontextualization of standardized measures. Just as children's natural language use is dynamic and affected by contextual factors, measures from different types of language samples will generate different results. For example, young children typically do not tell well-formed stories and can have difficulty when asked to generate a fictional narrative (Berman & Slobin, 1994). Thus, a 3-year-old child would have more difficulty producing a narrative retell than having a play-based conversation and would likely produce a more limited sample in the narrative retell condition. Moving into the school-age years, we see an inverse pattern: The conversational context tends to elicit less complex language when compared to children's productions of narratives (Leadholm & Miller, 1994). Through the school-age years and into adolescence, children use more complex language when they are asked to describe a process (i.e., expository sample) when compared to their productions of conversations and narratives (Malone et al., 2008; Nippold, Hesketh, Duthie, & Mansfield, 2005). Even within genres, there can be differences in measures based on how the samples are collected. For example, more complex language is elicited in structured conversations than free play in school-age children (Evans & Craig, 1992). Also, the amount of scaffolding provided to the narrator has a substantial effect on the quality of narratives. For example, narrative retells elicit longer and more complex stories than spontaneous productions (Schneider & Dubé, 2005).

If comparing a child's language performance to a database of typically developing speakers, the SLP must ensure that the elicitation techniques are comparable to those used to generate the database. Furthermore, if language sample measures will be used to document a child's progress, the SLP must ensure that each sample is collected using the same procedure. Failure to achieve consistency when comparing across contexts may result in different performance across samples as a function of how the measures were collected, rather than differences due to a child's level of performance.

Myth #7: I'm convinced language sampling is the solution to all my clinical problems!

As diligent consumers of an exponentially increasing amount of information, we know that we should be suspicious of products and procedures making grandiose claims. LSA is not the answer to all of our problems. Children with language impairment are a heterogeneous group and there is no single method of accurately describing each child on a given caseload. Thus, SLPs need to have a battery of assessment techniques available to effectively identify children experiencing oral language difficulties and plan a course of treatment. LSA provides a strong evidence-based method of assessing children's natural language use that has the potential to substantially enhance your clinical practice.

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