Abstract

Language sample analysis (LSA) is a useful tool in detecting a language disorder. However, there is no general consensus on the appropriateness of certain measures for detecting delays. While some measures (IPSYn-50, DSS, SUGAR, etc.) require 50 utterances, there are a number of algorithms that prescribe 100 utterances (IPSYn-100, MLU, VOCD, NDW, etc.) per language sample.

Many computerized language sample analysis programs have reduced much of the time burden related to LSA e.g., Systematic Analysis of Language Transcripts (SALT) and Child Language Analysis (CLAN); yet, there is still a long-standing debate regarding the required length of a language sample to detect language delays in children. We analyzed a very large corpus of preschool children with/without language disorders to determine whether samples as small as 25 utterances suffice to distinguish delay from typical development. This project utilized the Ellis Weismer corpus at TalkBank.org, originally collected by Moyle, Ellis Weismer, Lindstrom, & Evans (2007).

Methods

This project utilized the Ellis Weismer corpus at TalkBank.org, originally collected by Moyle, Ellis Weismer, Lindstrom, & Evans (2007). A total of 112 children participated in this 5-year longitudinal project. Fifty-six children were identified as having a language delay (LD) and 56 children were identified as having typically-developing (TD) language abilities. Children were classified as TD or LD in 6-month intervals between the ages of 30 months and 66 months. Samples from children in both the 30-month group and the 42-month group were elicited via parent-child interaction (PC) or examiner-child interaction (EC). Samples from children in the 54-month group were elicited via examiner-child interaction or interview. Finally, samples from children in the 66-month group were elicited via conversational speech sampling. We assessed a total of 12 LSA measures according to their ability to distinguish between TD and LD children, given the context and age level.

We operationally defined significant differences between TD and LD groups on a given measure/sample size combination as success in distinguishing typical from disordered performance.

Results

Preliminary results demonstrate that each measure appears to have its own benefits. For example, IPSyn 25 and 50 to 50 tends to be more informative for younger age groups (30pc and 42pc), while IPSyn 100 tends to be more useful for older children (66-months). SUGAR (TNW, MLU, WPS, and CPS) fails in the oldest age group (66 months). MLU-S, TNW, and WPS does not successfully differentiate TD and LD within any age groups.

MLU-morphemes, MLU-words, and VOCD are useful measurements across three age groups, but all three measurements are unsuccessful at 66 months. Of the seven measurements that require 50 utterances per language sample (IPSYn-50, DSS, SUGAR) four were successful at all significant age levels. Four measurements that prescribe 100 utterances (IPSYn-100, MLU, VOCD, NDW) were successful at varied ages.

Discussion

No single sample size or LSA measure succeeded in distinguishing between TD and LD preschool children. Critically, conventional measures that rely on 50 or 100 utterances could not be used with the youngest LD children, who spoke too little; however, adaptations that reduced necessary sample size for IPSyn to only 25 utterances worked well to distinguish the two sets of children at ages 30 months and 42 months, underscoring the importance of finding measures that use fewer utterances for this age group.

Many LSA measures show a developmental trajectory, which is a sensible rubric for evaluation. However, in evaluating with larger sample sizes, some measures do not show sufficient growth trajectory and that some show growth over only parts of early language development, and not others (Bernstein Ratner & MacWhinney, 2016). Our further work will include adapted LSA measurements with 25 and 50 utterances per language sample. We consider these results preliminary as we begin to establish guidelines to recommend specific LSA measures and appropriate sample size requirements to differentially diagnose impairments in children’s grammatical and lexical development.

References